COMPUTERWORLD

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Lead or Be Regulated, DPers Told

By a CW Staff Writer

ATLANTIC CITY – The public is becoming increasingly aware of the impact of computers, but is more worried "by what it suspects but does not know" Regulation of some sort is therefore likely, according to one of England's leading computer industry figures.

Using the familiar warning, "if we don't police ourselves, the government will," Sir John Wall, chairman of the board of International Computers Ltd., said the computer industry has two choices on regulation: continue to leave regulation to others, or "take the lead" by devising and recommending forms of regulation, codes of behavior, and standards of professional ethics to assure the public that the computer industry can be trusted.

"Can you, with your world domination, refuse to lead?" he asked the keynote audience at last week's Spring Joint Computer Conference here.

Wall said the British computer industry is "slightly ahead" of the U.S. in this regard, "but we hope not for long." He pointed out that the British Computer Society adopted a Code of Conduct last February.

'Trust and Confidence'

The code is intended to "promote trust and confidence," he related, noting members should be aware of the computer's affects "on the basic human rights of individuals."

"A small start, perhaps. But a start," he said.

The opening address was received extremely well by the 1,500 attendees, and Dr. H.R.J. Grosch of the National Bureau of Standards later called it "the best keynote address we've heard in years."

Wall appeared to be an advocate of user's liberation, citing the sudden proliferation of independent suppliers as "a mile-

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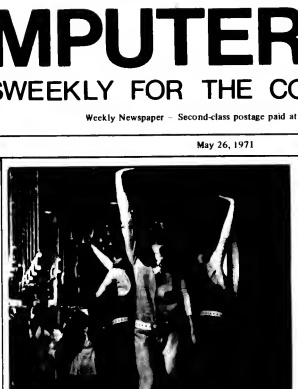
Sir John Wall delivers keynote address.



Ma Bell, in a wrenching change of image, drew crowds to the AT&T exhibit with a soundless trio. The words and music could only be heard with headsets. (CW Photo by V.J. Farmer)

Human Rights Linked To DP Responsibility

By Edward J. Bride
CW Staff Writer

ATLANTIC CITY – Sen. Sam J. Ervin Jr. (D-N.C.) said computer people have accepted a "special responsibility for the preservation of 'liberty'" in the U.S., and must deter government from computer applications which might "adversely" affect constitutional rights.

Ervin told some 800 attendees that computer people must continue to make known the restrictions and limitations of computers, especially since government has an "insatiable appetite" to collect information about the governed.

Although his SJCC luncheon speech last Thursday deviated greatly from his prepared remarks, the North Carolina Democrat reiterated all the major points in the prepared document at a press conference following the formal delivery.

His actual delivery was given in off-the-cuff fashion, as he discarded the text early in his appearance.

Ervin's Constitutional Rights Subcommittee recently completed lengthy hearings on government surveillance through the use of computers, found much of such "spying," and as a result, Ervin stated, "Americans will have to work harder ... to keep the First Amendment a living thought in the computer age."

Stressing that freedom of speech may be jeopardized by an individual's fear that what he says may be turned against him, Ervin said:

"When political managers ignore or abdicate their responsibility to assure the application of due process of law ... then computer professionals may have the final say-so."

Ervin claimed he has received

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21,400 Attend SJCC, Afips Cites 'Quality'

By Edward J. Bride
CW Staff Writer

ATLANTIC CITY – The 1971 Spring Joint Computer Conference attracted 21,400 attendees and 201 exhibitors last week.

But quality rather than quantity made it a success, according to the sponsoring American Federation of Information Processing Societies (Afips).

The audience, said Afips President Richard I. Tanaka, treated the SJCC more like a conference than a convention.

"While conference themes can sometimes tend to be shallow, I think there has been a successful attempt to talk of technology in a responsible way," Tanaka stated.

"This is the biggest change in this conference."

But while the responsibility theme predominated in the conference halt, the economic recession brought back the girls and gimmicks to the exhibit hall. The pickings were also slim on the "jobs available" bulletin board at the main entrance.

Back were the sales gimmicks, the on-the-floor raffles, and back were the souvenirs, handed out by the pretty girls in abbreviated costumes who had been banned at the last show.

GTE even raffled off an audiochair per day. The egg-shaped chairs are equipped with a stereo system and Touch-Tone telephone. Also on the upswing was exhibitor interest, in participation and in visitor contact. The number of exhibitors, fluctuating around 190 for the past three weeks, wound up at 201, with the last entry made Monday afternoon.

Exhibitors in general stated the sales prospects were good, or at least better than they appeared at any time in the last year or so, and one company reported making 40 contacts the first day.

Interest was not so high in the "counter-sessions" sponsored by the Computer People for Peace, a group whose very visible presence was made obvious at a peace rally, at its own sessions and through demonstrations or interruptions of other sessions.

Outside the hall, a vendor said attendees seemed preoccupied with dollars this year, and the CPP presence provided a diversion for those interested in different types of problems.

Their anti war rally, however, drew only about 150 people; they had told CW they hoped for 800 to 1,000. The vast majority of the 10 was white-shirt-coat-and-tie, with perhaps a score of identifiable members of CPP.

CPP's sessions too, were criticized – in some instances for lack of relevance at a computer conference. Some of their presentations examined anti-personnel weapons or other such items. The group was also criticized for apparent mistreatment of nonmembers who wished to contribute to their theater-in-the-round discussions.

Attendees of the Afips sessions

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Burroughs Top Scorer

Big T/S Systems Benchmarked

By Frank Piasta
CW Staff Writer

ATLANTIC CITY – A study on interactive time-sharing systems by the Ford Motor Co. and the reactions of the eight manufacturers being studied comprised a panel discussion on "Competitive Evaluation of Interactive Systems" at the SJCC.

The results of the study, presented jointly by Ford's E. Hubbs Grimm and Paul R. Borman, showed Burroughs to be best in the comparisons while RCA fared worst. The other companies, in descending order were: CDC, DEC, XDS, Honeywell, Univac and IBM.

Procedure Followed

The testing, intended to evaluate such capabilities as ease of use, computing power, reliability and support software, required systems that could handle Cobol, Fortran and Basic from remote terminals.

The procedure followed was to enter source codes by teletypewriter, compile the program, determine and correct source errors, recompile, execute the program with test data, examine the output, and execute with real data.

The programs used were written in each of the three languages and were designed to require extensive use of the file systems, command languages and available text editors on each system.

Areas found lacking in some systems, according to the study, included diagnostics for both load and execute, documentation, software and hardware reliability. Cobol standards, program status information and accounting information were also cited as weak areas.

The Burroughs B5500 used TSMCP which was found to provide simple operation. The provision for workspace and a "smart" Run command, as well as the ability to change pass-

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Employers May Lean Toward Manager, Not Technician

By Michael Merritt
CW Staff Writer

ATLANTIC CITY – While unemployment and job-hoppers both may exist in the DP job market, a panel here seemed to agree that the sources of new computer professionals are not supplying the type of people the job market wants.

They also considered the professional status of the programmer. Moderator Herbert Z. Halbrecht of Halbrecht Associates, a DP employment agency, said that he has seen a trend in his business toward rejecting technical specialists for top jobs in DP management. There is increasing user sophistication, Halbrecht said, and managers are giving up a margin of technical brilliance in order to get managerial and executive capability in top DP positions.

According to Halbrecht, company presidents are discovering that "the computer . . . has become much too important to leave to computer professionals."

Richard Conway, a professor of computer sciences at Cornell University, faulted computer sciences departments for ignoring "80% of the computing world," business data processing.

While computing sciences departments have been a rousing academic success, attracting "spectacularly good students" and achieving high "academic social status" and good placement rates, they have avoided business DP problems that often appear simple and tedious.

Hundreds of thousands of undergraduate students are learning to program, Conway said, but most of them are learning Fortran rather than Cobol. The academics who graduate from the computer sciences departments do not go into business data processing, but become professors of computer sciences and continue to emphasize scientific programming.

"I think we are educating people so they do not provide maximum impact on the major portion of computing," Conway ststed.

The DP vice-president of American Express Co., Roger C. Guarino, questioned whether there is such a thing as a DP professional.

Guarino listed several qualifications for professional status: a defined body of knowledge, defined standards of competence, a code of ethics, professional societies, responsibility to society in general, independence of non-professional management, a strong loyalty to the profession, and the right to eject members from the profession, among other criteria.

He implied that DP people obviously did not meet these qualifications.

The vice-president also questioned whether DP people are psychologically qualified to take on managerial responsibilities. He cited a survey that indicated successful systems analysts are independent, orderly, autonomous types, who may not have the characteristics to be a good vice-president.

Coming from a "hodge-podge" background at MIT and the "cold, cruel business world," and now vice-president of the First National City Bank in New York, Richard G. Mills questioned whether programmers and analysts should shoot for the vice-presidential slot anyway.

DP Regulation Is Likely: Wall

(Continued from Page 1)

stone along the road of customer independence from system suppliers."

He saw plug-to-plug peripherals as "just the beginning of standard interface arrangements," so peripheral controllers, front-end processors, and "indeed, complete systems can have a standard interface."

The U.S. computer industry is "ripe for such standards and standard interfaces," he claimed. The user will probably never be in a stronger position to insist on these standards, now that the growth rate has had a pause.

The industry, Wall continued, has a responsibility to forestall "computer pollution," by informing the public and the government "what you, as an industry, think should be done to safeguard the rights of man."

Any computer operator with "technical access" to sensitive personal data should undergo "the same rigorous screening as a cipher clerk in a security establishment," he commented.

"Will you state openly that because you are responsible for the threat to privacy you will act responsibly to combat and minimize that threat?" he asked.

The problem of privacy threats is the industry's "since we are the ones who developed the means."

The solution, however, will be wrought by government and the public.

In the meantime, a professional ethic is needed, similar to professional and ethical positions earned by doctors. "It is up to the computer industry to demonstrate that it is entitled to the same public support on its ethical stand," he declared, adding, "suspicion must be replaced by trust."

The U.S. computer industry has not accepted the responsibility which goes with power, he stated, nor have computer people "reconciled yourselves to the endless criticism which goes with responsibility." Criticism goes with power, he noted.

Demonstrate to the entire international community "that you have accepted fully the responsibilities which go with power," he advised, since "the longer you delay, the greater will be the risk that others will make decisions for you."

It is not too late, he added. "Your industry has the capability to do this job well."

"The only question is," he concluded, "do you have the will?"

Maturity Cited

Spring Conference Was 'Quality' Show

(Continued from Page 1)

appeared a cross-section of middle and upper management, with more females than before. The CPP sessions were intended to draw their audiences primarily from the lower-level workers, but some of the management types stopped by the meetings, apparently out of curiosity and left when excluded from discussions or when the sessions appeared irrelevant.

Of the exhibitors, the largest categories seemed to be in memories, printers, card punchers and readers, displays and communications equipment.

There were many mini makers on the exhibit floor, perhaps 20, but only RCA showed a mainframe. Other major manufacturers were prominent in the technical program, especially IBM.

The attendance was never actually expected to hit the 30,000 figure used for planning, and Afips officials said they were "quite pleased" with the final totals. The attendees were "less frivolous and more serious" than in some previous JCCs, according to Tanaka.

Regarding the rules on sales gimmicks and pretty girls, Executive Director Bruce Gilchrist said, first of "hot pants," that "if these clothes are worn in offices and on the streets, how could we prevent them from being in the show."

He also said the "gimmick" ban is still in effect, although did not elaborate on why it was not enforced. Some manufacturers "as usual" did not inform Afips of their plans ahead of time, Gilchrist added.

While the conference theme was echoed throughout the sessions, attendees and association officials appeared anxious to get on with the work of "computers and the quality of life," the theme of the fall show in Las Vegas.

Keynote audience listens as Wall urges computer industry to impose self-regulation.

DP Responsibility Linked to First Amendment Right by Sen. Ervin

(Continued from Page 1)

many letters from DP specialists, systems designers, engineers, programmers, professors and others in the scientific community," proving they share concern and "apprehension about excesses of governmental surveillance and inquiries."

The problem with computerized files, Ervin contended, is that the always-existent problems with errors in manual files is magnified by their size and ease of retrieval in computers.

New Data Bank Disclosed

The Senate inquiry has uncovered a data bank of about 11,000 names at the Federal Communications Commission, Ervin said. It contains the names and addresses of organizations and individuals whose qualifications for FCC broadcast licenses "are believed to require close examination."

The names are listed before application, Ervin outlined, adding the "variety of reasons" include license suspension, the issuance of a bad check to the FCC, or stopping payment on a license fee check after failing a commission examination.

In addition to the FCC reasons for being entered in the data bank, Ervin told the press briefing the FCC list uses the identity of individuals and organizations on lists at the Department of Justice, the Internal Revenue Service, the CIA and the House Committee on Internal Security.

The citizenry is concerned that computer-related errors may deny basic fairness and due process of law, his prepared remarks claimed, or that computers provide illegal access to and violation of confidentiality of personal information.

A "major reason for public apprehension" about computers, his remarks continued, is the use to "acquire, analyze and store information which is protected by the First Amendment."

He then cited some personality tests given to applicants for federal jobs, FHA loans, or even the census, as violations of the First Amendment.

Regarding the Army's "spying" on politically involved citizens, Ervin claimed the military was not alone in the collection of this data.

"Many other federal and state agencies were recruited" to supply "any information they had to the Army," the senator claimed. "In return, the Army shared their blacklists and computer printouts with many federal, state and local agencies," he added.

The subcommittee has still to discover the "complete truth about Army surveillance," according to the prepared speech, since responsible officials apparently "did not know of the existence of the computers for implementing this program."

His subcommittee has been denied expert testimony and documents despite repeated requests to the Army for cooperation, he claimed.

Ervin called for new laws on the use of computers, so that protection of First Amendment rights can be ensured. He appeared to advocate Dr. Alan Westin's idea of the writ of *habeas data*, as he called for a "habeas corpus" action for computers.

"On your shoulders as technology experts," Ervin continued, "rests the responsibility for guiding those politicians who seek computer-based solutions to political problems.

"You know that computers have only those values which are designed and programmed into them," he declared.

While Ervin's remarks did deviate from the formal text, his criticism of government spying through use of computers was consistent with his recent public remarks.

He criticized the Nixon Administration for "increasing use of computer technology" in pursuit of "inherent power to investigate lawful activities and to label people on the basis of their thoughts."

Society has much to gain from the computer, Ervin noted, and "no one can doubt that it is here to stay."

To assure against its political misuse, "we need new laws and . . . increased political participation by information specialists" who understand the machines.

"Otherwise," he warned, "we may find the individual in our society represented not by binary forms, but by one digit.

"And that digit," he concluded, "will be 'zero.' "

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Environment Control Said to Lack Data and Money

By Michael Merritt
CW Staff Writer

ATLANTIC CITY – Because the data, money, systems and enabling power are lacking, man is not able to manage his ecosphere in a more rational manner, several panelists at an ecology session last week agreed.

The panelists possessing expert knowledge in different but interrelated areas of ecology each added a brush stroke to an overall picture of the overwhelming complexity and difficulty of environmental studies. They also presented a challenge to man's ability to understand and control his world.

Harry G. Woodbury, Con Ed's vice-president for environment, tussled verbally with Dr. Stanley Greenfield of the Environmental Protective Agency, the federal body charged with promulgating quality standards that affect, among others, power companies.

Woodbury complained of the difficulty in getting the multitude of permits necessary to construct a power plant, and the constantly changing emission standards his plants have to meet.

He also questioned whether the hundreds of millions of dollars in extra cost for emission control that are eventually passed on to consumers are best expended on reducing pollution by power plants, or whether the money might be better spent in other environmental measures.

The problem is that no one has been able to quantify the tradeoffs necessary that would give the answer to this question. No one has done the system analysis, he said.

Greenfield, concurring with Woodbury, said his rough calculations on the Los Angeles basin area indicate that pollution could be cut by two-thirds in the year 2000 if all energy were provided by electrical power plants – and all cars in the area were electrically powered.

Greenfield also pulled out a doomsday prediction. His calculations show that in the Los Angeles basin human power generation – which, by immutable thermodynamic law becomes heat – now equals 5% of the total solar radiation falling on the 1,000 square mile area. By the year 2000, it may go up to 18%.

He said that no one knows what the climatic effect of this immense amount of heat will be. No one even knows whether it will be good or bad.

Because no one has the data, models or money to find out, he said.

Hans Oestreicher of the Aerospace Medical Lab of the Air Force, who has had much experience building models of complex biological and social systems, said that with current computers it is impossible to handle models with more than .50 "sensitive" or significant parameters.

He noted that the ecological systems being discussed are extremely complex, much above the 50 parameter limit.

The final panelist was Robert Small of the Environmental Development Agency of San Diego, Calif. Small's organization has received a Ford Foundation grant to do a systems study of land use in the San Diego area, and to try to supply local government agencies with rational input for land-use decisions.

While Small was guardedly optimistic about the possibility of working toward this goal, he said that the complexity of the problem, the cost of research, and, most important, the time it will take to accomplish the research, militate against such systems being of major help to San Diego, which must make decisions in the next few years that will set its future pattern of development.

Small was also pessimistic about the implementation of systems analysts' recommendations by local governments, which may tend to follow gut feelings rather than computer scientists' numbers.

DP Nets and MIS Worldwide Problems

By E. Drake Lundell Jr.
CW Computer Industry Editor

ATLANTIC CITY – It may not be cheerful news, but problems with implementing data networks and designing workable software and management information systems are a world wide phenomena not limited to the U.S.

That's the conclusion from a panel of international experts that included the first Russian to address a Spring Joint Computer Conference.

Sumio Ishizaki, manager of EDP at the Fuji Bank in Toyko, told the panel that the most urgent problem facing the Japanese in the upgrading of applications was in software development, which he said was getting special development assistance from the government.

The major change taking place in Japan, he said, is the development of information syndicates, made up of several members of one industry to share equipment and services as well as software development.

The Russians are several years behind the Americans in computer development, S.I. Samoylenko, vice-chairman of the Council for Cybernetics in the U.S.S.R.'s National Academy of Sciences told the session.

The Russians are devoting most of their effort to research, he said, with special emphasis on the theoretical basis of computing and information networks. There is also a great deal of work being done in the development of software, but primarily for control applications.

He admitted that the U.S.S.R. computing community was several steps away from developing management information systems and other systems to aid decision makers, but said that prototypes of these sort of systems were presently in use by both the government and industry.

The two representatives of Europe, Dr. Philip Dreyfus of Frsnce and Prof. A.S. (Sandy) Douglas of England, said software developed in Europe was capable of competing with any that was being produced in the U.S.

They said that the European user and his American counterpart generally do things in the same manner and are quite close in their methods of applying computer systems.

The main cause for differences is that Europe is comprised of 20 separate countries with different languages and customs for about the same population of the U.S. Each of these require separate approaches to many of the same problems, which has retarded the use of packaged software on the continent, according to Dreyfus.

According to Douglas, the most important research currently being conducted in England and on the continent was in the area of the theory of information structures. The DP profession, he said, has no theoretical basis for many of the projects undertaken today.

Harold Head, a South African journalist and historian banned in that country since 1964, pointed out that computer systems were aiding the South African government in its policy of racial separation by permitting voluminous records to be kept on citizens of the country.

He noted that many firms made huge profits out of dealing with the present government there.

He issued a passioned – and well received plea – for greater understanding of the needs, desires and cultures of developing nations before computer systems are implemented in them.

Burroughs High Scorer in Time-Share Evaluation

(Continued from Page 1)

words, was noted. The system must use fixed block disks, the panelists said.

The CDC 6400, using Kronos VI, provided a secondary file area as well as workspace. Simplicity of operation was judged a good point as was the ability to make password changes.

The DEC T/S Monitor and PDP-10 were judged very concise, if somewhat cryptic. It was found capable of peripheral interchange terminal disconnect and was able to communicate in either full or half duplex.

Using BTM, the Sigma 7 from XDS was found consistent with standardized conventions. Comprehensive aids included what the study called the best user's guide. The system communicated in full duplex mode.

The Honeywell Informations Systems 635 used Gecos III and provided workspace as well as individual subsystems.

The Univac 1108 and its Exec 8 were criticized for batch-like interface terminology. Two different disk formats are possible, the report said. The report described the company's use of non-standard terminology which made parameter changes necessary.

The IBM 360/67 was run under CP 67 and was found to be excessively complex due to its requirement for five command languages and three file systems. The interactive terminal facility was said to be restricted.

Cobol on the IBM system had to run under OS/360 with JCL. The balance of the languages used the Cambridge Monitor System (CMS) which required the preparation of 34 control cards.

The RCA 70/46 run under TSOS was criticized for a batch-line command language. The test programs had to be run in the background mode since only a tape sort was provided for time-shared processing. Disk file allocation and consistency were problems and the system was described as overly complex and confusing.

Other Point of View

The company representatives were then given a chance to comment on the accuracy of the report and those responding admitted to most of the charges and stated that steps were being or had been undertaken to remedy the problems.

The audience, in response to a request by Howard Bromberg, session chairman, indicated by a show of hands that it was for the most part users of interactive systems. Again by a show of hands, the audience indicated that the largest two groups were IBM and DEC users with each of the other manufacturer's users represented.

The representatives of the vendors then described how some of the problem areas mentioned were being corrected in newer versions of the operating systems. The study was completed in Detroit last fall.

Squire Acquitted

By a CW Staff Writer

NEW YORK – Clark Squire and 12 other Black Panthers have been acquitted on all charges in a bombing conspiracy case.

The trail took nine months – the longest in New York State history, but the jury took only 90 minutes to reach its verdict.

Squire is a programmer who was held in jail for 25 months on the charges. Bail was set at $50,000, but when Computer People for Peace actually attempted to post the money in December 1970, the judge canceled bail rather than release him.

The state's case was based primarily on the testimony of three undercover agents. The jury foremen told reporters that there was "not enough evidence. It was very nebuious."

One of the jurors, Benjamine Giles, said the undercover agents seemed to him at times to be unintentionally "testifying for the defense." Another juror called the evidence "flimsy."

The jurors were also critical of the judge's conduct. Several of the jurors had considered the judge "biased" since the middle of the trial, according to juror Joseph Gary. He added: "Some jurors wara so angry they wanted to come out of the jury box and say 'You're biased, biased . . . this is it – we're going to acquit."

CPP announced that those who contributed to the Squire Bail Fund could get their money back by writing to the group at the Dolphin Center, 137A W. 14 St., New York. But a CPP spokesman urged contributors to leave their money in the fund, and said that an alternate use for the money would be suggested by the group soon.

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Computerized Redistricting

Politics Should Be Considered

By Joseph Hanlon
CW Staff Writer

ATLANTIC CITY – Incumbent politicians control redistricting, and computer professionals and computerized redistricting programs must take this into account, according to speakers at "Computers and the Electoral Process."

An example of thorough control was described by Sidney Hess of the University of Pennsylvania. After a group he was associated with redrew the electoral districts for the State of Delaware, the Republicans took control of both houses, and assigned the next redistricting project to a software house that reportedly does all of its redistricting work for that party.

Redistricting has been forced primarily by court one-man one-vote rulings, which have required electoral districts to be approximately equal in size with a balanced representation of political parties. But within those legal constraints, political considerations come to the fore.

A system that allows the computer to consider explicit political criteria, such as not disturbing incumbents and allowing minority groups to have their own districts, was described by Stuart Nagel of the Yale Law School.

The system used by Hess, on the other hand, only considers compactness of the districts. But the Hess group produces many different redistricting plans that satisfy the legal criteria, leaving the politicians to select the one they want based on political criteria.

Nagel said his system attempts to approximate what the politicians themselves actually do, namely taking the present electoral districts as a base and then shifting precincts from one district to another to satisfy the criteria.

The Hess system starts with district centers, selected on any basis, including present district centers, and attempts to construct new districts around them.

In all cases, computer redistricting allows many more factors to be considered and sharply reduces the time required to produce a plan, according to the speakers.

Computerized voting was surveyed by the third speaker, Colby H. Springer, of Systems Research Inc. There are "no satisfactory program standards," he charged, and "logic and accuracy tests test neither logic nor accuracy." Furthermore, he declared, present computerized voting systems "demonstrate a significant vulnerability to program manipulation."

Springer proposed three basic safeguards:

- Counts and reconciliations of all ballots, including those not used, to make sure that the number of votes cast is correct.
- A core dump at a random time during the vote count to check for program modification.
- Accuracy and logic tests.

He noted some districts now use independent computer professionals to check the accuracy of the commercially produced software.

Additional training of election workers is also important, he said, and pointed to Fresno, Calif., which plans to run a complete mock election before it uses the system in a real vote.

Digital Equipment's Datacenter gets close inspection. (CW Photo)

DEC Datacenter Includes Work Station, PDP-11

By a CW Staff Writer

ATLANTIC CITY – Digital Equipment Corp. (DEC) has combined its PDP-11 with a desk-top display and keyboard to produce the company's most user-oriented product, the Datacenter.

The work station is equipped with a typewriter keyboard, numeric Pad and 16 function keys. Function lights can be programmed and labeled.

The display offers a screen size of 10-1/8 in. by 7-5/8 in. Up to 72 char/line can be displayed on 20 lines. A non-destructive blinking cursor is provided.

The addition of a hardware decimal conversion routine will adapt the PDP-11 to the needs of the commercial user, while the addition of hardware floating point will benefit the user who performs Fortrrn or Basic. The conversion and floating point will be available at the end of the year, according to DEC.

Datacenter configurations are expected to be priced between $40,000 and $50,000. Additional terminals will cost $7,995. Deliveries are scheduled to begin in late 1971.

Few Rules on Software Liability Said To 'Frustrate' Users, Hamper Contracts

By Edward J. Bride
CW Staff Writer

ATLANTIC CITY – Good software does 80% of what you want it to do, 80% of the time, according to a past president of an IBM user group and panel member at one of last week's SJCC sessions.

Philip Dorn momentarily stole the show from attorney Roy Freed with the "80%" remark; but the poor performance of software apparently makes it difficult to fit the liability of software suppliers into today's legal system, which was Freed's premise and the topic of the meeting.

Dorn is past president of Share, one of the nation's largest computer user groups. He revealed that, since software is now considered valuable by users, "we no longer give programs out." Software is sold, Dorn stated, or traded for "value in kind."

There are few hard and fast rules regarding software liability, Freed stated, and this tends to "frustrate" users who are unfamiliar with legal implications of locally developed or purchased software.

The real problems of liability arise in third-party damages, Freed and the panel members agreed, such as when computer graphics are used to design an airplane's structure and it might fail, or when erroneous software causes a bank to refuse a patron's check when he actually has sufficient funds.

This last occurrence is called "slander of credit," but it does not represent the only personal injury that can arise from computer-related errors.

Misinformation obtained from a CRT, for example, could subject a user to libel suits, while using an audio response unit would change the charge to slander. Either way, all panel membera favored avoidance of litigation by requiring people with technical expertise to assist management and corporate legal departments in writing strong contracts.

New York lawyer Freed Israel, however, however, noted users do not have to accept manufacturer's waivers of responsibility, nor are there any laws to require the vendors to be responsible for their systems.

Freed and Israel both stressed the need to detail all these responsibilities in contracts, so both sides know what is expected of the product or services.

Two past presidents of the Association of Independent Software Companies were on the panel and one, Dick Jones, said the software contract is probably the weakest point in any computer arrangement.

Jones struck another note on behalf of users when he criticized the practices of some software companies who bid so low on a competitive procurement that they lose money.

The other past president of Aisc, Herb Bright, stated users too often do not understand the concept of "risk." In commenting on the panel's consensus that contracts can be written to protect either the user of the vendor from various charges (contraction, slander, errors, etc.), Bright said a user must expect to pay more if he wants to be protected.

Bright also compared government and commercial software procurement practices, giving the Expert edge to the commercial computer community, which investigates vendors, holds people accountable for results, and considers "values as well as cost."

RCA Pushes Mics Package

ATLANTIC CITY – By demonstrating a full-scale hardware system at the SJCC and announcing a software application package, RCA has shown signs of becoming a maverick.

Used internally by RCA for two years, the Manufacturing Information Control System (Mics) is an on-line system to provide management with current data in six major areas.

The integrated system is said to be able to use up to 30 files as a single data base for marketing, distribution and production planning and control. Mics also supports materials planning, financial control and operating analysis.

Under Mics, the user can utilize almost any file access method.

RCA said Mics provides:

- On-line data collection and update.
- On-line data collection for later batch processing.
- Inquiry response.
- The ability to output exception reports on request, to a terminal.

The Mics system is written in Assembly Language and Cobol and requires a minimum of 131K bytes of memory. It operates under TDOS on the Spectra 70 series or the RCA 2 or 6.

Arthur D. Little Adds Software, Systems Development Subsidiary

CAMBRIDGE, Mass. – Users gained a major new source of software and systems design last week when Arthur D. Little, Inc. announced the formation of ADL Systems, Inc.

The wholly owned subsidiary will provide four types of services: turnkey systems, facilities management, proprietary software packages and integrated systems engineering.

The parent company already has extensive experience in the field as a result of its management consulting activities. The subsidiary will have a staff of software and systems development people and will call on ADL specialists in markets and technologies as needed, according to James E. Murphy, board chairman of ADL Systems.

Protestors' Arrests Not in Data Bank Yet

ATLANTIC CITY – The arrest records of the 13,000 Washington demonstrators have not been entered into the computerized files of the FBI yet, but have been ordered held in suspension by a superior court judge.

George R. Donahue, assistant chief of the Washington, D.C., Police Department, also stated an individual may apply in person and pay a $1 fee for a copy of his D.C. record.

Raytheon CRT Terminal Features 'Enhanced' Character Generation

ATLANTIC CITY – A microprogrammed CRT terminal announced at the SJCC by the Raytheon Co. is the company's lowest-priced display device.

The RDS Programmable Terminal combines a solid-state computer with a typewriter keyboard and a 9- or 14-in. CRT in a modular configuration. "Enhanced" character generstion, the company said, produces crisp, bright characters from a 7 by 9 dot matrix.

The microprocessor has 4K 8-bit bytes of semiconductor memory, expandable to 64K, with a cycle time of one µsec.

The terminal program may be modified locally, or remotely by the host computer complex, Raytheon said.

Raytheon estimated that the cost of an eight-terminal system with controller would rent for about $1600/mo and sell for about $16,000. First deliveries will take place during the first quarter of 1972.

Delta Cuts 2000 Price

ATLANTIC CITY – Delta Data Systems announced a 40% price reduction of its Delta 1 Model 2000 color video display terminal at the SJCC.

Formerly priced at $10,500, the unit will carry a price tag of $6,200, according to Delta, which is less than the original price of the black and white Model 1000.

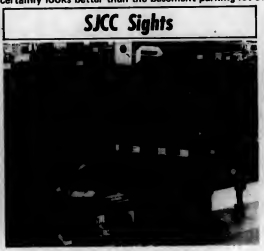
The newer Delta 1 can display four different colors controlled by either computer or operator.

Current delivery is 45 days from Woodhaven Industrial Park, Cornwell Heights, Pa.

The West Hall certainly looks better than the basement parking lot of last year. (CW Photos by M. Upton)

SJCC Sights

Wide aisles proved their worth in the old hall.



Potter's booth was loaded with user equipment.

RCA exhibited a System 3.

U.S. Official Sees Governments Lacking DP Expertise

By Edward J. Bride
CW Staff Writer

ATLANTIC CITY – There exists a lack of DP expertise in state and local governments, according to a federal official who deals constantly with many governmental agencies.

Gilmore S. Wheeler of the Office of Economic Opportunity said "concerned citizens" and technicians with DP talent should alleviate this situation as government needs detailed information on a timely basis if successful programs are expected of the government.

Even computers are limited by the inability to judge a project's chances for success, Wheeler noted.

An audience of about 200 heard Robert L. Chartrand of the Library of Congress state "there isn't that much new" regarding the information needs of government, but that computers can be used to bring better communications (and therefore information) between congressmen and their constituents.

Chartrand predicted his congressional research service would handle 190,000 requests this year. His computerized data bank of legislative information includes economic data for politicians speaking in unfamiliar territory, legislative history and related data.

By using this service, Chartrand said, congressmen can become more accessible to the public.

The ideals of management information systems are surpassed by the executive information system, according to D. Sam Scheele, who noted "the administrator needs facts, but executives are concerned with expectations."

Scheele said an executive is concerned with the likelihood of an event or the plausibility of a project, while the administrator is concerned with the accuracy of data and the relevance of a report.

Furthermore, an administrator requires reports on a regular basis, while an executive would prefer timely information, whether on a regular, recurring cycle or not.

Preconference Criticism

The "responsive government" session drew preconference criticism from the Computer People for Peace, who did not attend the meeting apparently because they had been told there would be no time for dialogue after the formal presentations.

With one speaker not appearing because of illness (Jeffrey S. Schiller, of the office of Economic Opportunity), there was some time for interchange with the audience, and Wheeler extended the meeting by a half-hour so all inquiries could be handled.

One of the few members of the audience who remained throughout the two-and-one-half-hour meeting questioned the relevance of some conference presentations in general.

He said while much valid, pertinent information is being exchanged, in many cases a presentation discusses a situation "which happened to be done on a computer," but was not deeply computer-related, or not infeasible to handle manually or in other non-computer manners.

Computer-Based Laboratory Proposed To Solve Social, Environment Problems

ATLANTIC CITY – The establishment of a computer-based social science laboratory to test ideas to solve social and environmental problems was proposed at a session entitled "From the User's Viewpoint – Computers and Public Policy."

The session, attended by about 125 people, seemed misnamed because the user's viewpoint was noticeable only by its absence from the panel of speakers.

Effects Unknown

In calling for a federally sponsored laboratory to apply gaming and simulation to the urgent problems of the day, Dr. Peter House, president of Environmetrics of Washington, D.C., said that most programs for alleviating social problems are implemented before there is any knowledge of their probable effects on both the society at large and the economy.

He said that society could no longer afford to attack and "solve" social and environmental problems the way it has attacked the problems of war, race and urban decay.

The tools that would be needed for the center would include a fully developed management information system capable of supplying information to decision makers at all levels of government, he said.

In addition, the first phases of the center would include gaming and operational simulation systems so the effects of certain policy decisions could be measured and projected by decision makers.

Machine Simulation

The final phase of the system would involve complete machine simulation, where human interaction would not be required for system inputs and the system would continually keep updating itself automatically.

It would take several million dollars of federal support to do the necessary research to implement the first phases of the program and then several million to establish the center, House stated.

The amount of money that would be necessary to establish the full project cannot be estimated now, House added, because the amount of research needed is not known at the present time.

The hardware capability was presently available, he said, for the initial phases of the project and the software was at a point that it could be useful, even though most of the initial research funds would have to go to software development projects.

Speaker Hits Computer Irrelevancy

ATLANTIC CITY – Computers are not relevant tools in public policy-making, and are therefore not relevant to much of the populace, according to one speaker at the SJCC "responsive government" session.

Alan T. Faller, whose DP credentials include an MIT degree in urban systems and Navy experience in computer graphics, said time is an executive's most valuable asset, yet computer output can cause such an executive to waste time in the decision-making process.

"Paper makes enemies for computers," Faller commented. "If you want to be relevant," he added, "make computer output understandable and usable to the decision-makers."

The use of graphics, such as maps to outline poverty or high-crime areas, or transportation needs, is more meaningful than a computer printout of statistics, especially when executives need to explain the output to colleagues.

"We should use other output devices than the printer," he noted.

Dr. Richard I. Tanaka, outgoing Afips president, makes it all official for former Vice-President Keith W. Uncapher. (CW Photo by Thomas J. Morton)

Sponsor Looks to FJCC, Uncapher New President

ATLANTIC CITY – Last week's Spring Joint Computer Conference probably did not lose money, its sponsor has reported, although early projections of profit to be distributed to constituent societies were not met.

The sponsoring society of the joints, the American Federation of Information Processing Societies (Afips), told a press briefing that cost control measures at headquarters in Montvale probably were sufficiently effective to keep the organization on the profit side of the ledger.

But a 35% drop in rented booth space, from last spring's affair, to about 600 for 1971, will mean a considerable loss in revenue for the dozen societies which compromise Afips, the group's officials noted.

Dr. Richard I. Tanaka, outgoing president, said the two major successes he noticed were the keynote address and the physical facilities, the latter a result of a reduction in "crowd control" problems of some previous conferences.

He said the exhibitors appeared happy with the quality of the booth visitors, and one small first-time exhibitor reported making 40 sales contacts on opening day.

Tanaka introduced his successor to the presidency: current Vice-President Keith W. Uncapher. Walter Anderson was elected to replace Uncapher; Robert Rector was reelected treasurer; and Donald Walker was elected to replace Richard Canning as secretary.

Tanaka called his tenure of two one-year terms a "satisfying experience."

Rather than expand next fall's exhibit program to include a fourth day, as originally planned, the Joint Computer Conference Board voted to continue the exhibits-only registration at $10, and to continue to run the conference from Tuesday to Thursday.

Afips had originally announced the conference would open with technical sessions and exhibits Monday through Wednesday, and exhibits only on closing day Thursday.

In explaining policy changes for the fall conference (Nov. 16-18) in Las Vegas, Afips noted the reinstitution of an exhibits-only fee at SJCC removed the necessity of a fourth day for exhibits only.

... About the Commission

ATLANTIC CITY – Afips has reacted to Sam Wyly's keynote call for a commission to study present and future data communications needs – one year later.

Wyly, chairman of University Computing Co., called for the commission during his keynote speech at the 1970 Spring Joint and Afips responded positively during this year's show here in an atmosphere of deja vu.

Dr. Richard I. Tanaka, pointed out that Afips generally moves with deliberate speed and admitted that the establishment of the commission could "have come sooner."

The new commission, which will be chaired by J.C.R. Licklider of MIT, will provide expert testimony to relevant congressional and other federal agencies, especially the Federal Communications Commission, Tanaka said.

The group will be drawn from the relevant technical groups among the Afips constituent societies, Tanaka said, and will evaluate the various communications proposals on a technical basis.

The panel will not become identified with any special interest groups in the industry, but will try to work behind the scenes to present all sides of the technical issues that arise out of hearings in the business.

The group would not take any direct position on the issues in the computer/communication industries, but would produce position papers on the technological feasibility of various proposals and on the general role of computers in communications.

In a somewhat related move, Afips used the SJCC as a forum to introduce two new books on communications as they relate to the computer industry. Published by Afips Press, the *Computers, Communications and the Public Interest* volume is a compendium of papers presented last year at an Afips-sponsored lecture series. The second volume, which will be available in about a month, will cover all of the law affecting the communications industry.

Internships to Studies

Variety Marks Afips Projects

By E. Drake Lundell Jr.
CW Computer Industry Editor

ATLANTIC CITY – Afips-sponsored projects involving computer interns, statistical research and professionalism are all entering new phases, the sponsor of the joint computer conferences reported last week.

In the computer internship program, Afips said that it will be sending five persons to developing countries during the next year to help them with developing computer projects. The five and their destinations will be announced in about a month, Bruce Gilchrist, executive director, said.

The statistical research program is being undertaken, Afips said, because there is a "dearth of reliable information" for measuring the industry.

Projects to be undertaken under this program include the ongoing personnel survey, which will be completed in a month; a new summary report on computer installations and use around the world, with emphasis on the share of the market controlled by U.S. firms.

This installation survey is taken mainly from U.S. Department of Commerce statistics, Afips said, but subsequent versions will contain more information directly from the companies involved. The organization said that it expected the survey to improve as additional inputs become available.

Afips is now fully committed to the development of a code of ethics for the computer profession, having passed a statement of purpose at the organization's board meeting the day before the show opened..

Also in the area of professionalism, the organization announced that it was contracting with an independent consultant to try to develop uniform job descriptions for the computer industry. The descriptions would standardize the definition of the various professions that are peculiar to the business.

Afips will also commission another study to outline methods to define preferred practices in the development of hardware and software systems.

This type of systems certification would be used in the area of public interest, Afips said, such as certifying that wire counting systems are capable of doing the prescribed job.

Another goal of Afips is greater international cooperation in the development of standards. Under Afips initiation, meetings have begun with the British Computer Society and the Japanese organizations.

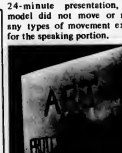
Art and Technology Make Discordant Relationship

ATLANTIC CITY – Another skirmish in the confrontation between art and technology took place at the Spring Joint Computer Conference with art initially losing, after Afips closed an art exhibit and used armed guards to prevent the artists or public from using the equipment.

After the show had been closed for almost all of the first two days of the conference, Afips management decided to reopen it after certain exhibits had been removed, most notably Gene Davis' nude woman.

Last year the local arrangements committee for the show contacted the Protetch-Rivkin Art Gallery in Washington to present an exhibit on conceptual art to enliven the show – which it did to an extent unexpected by the show sponsors.

The exhibit included one work by Gene Davis, a well-known artist for more traditional works, but who decided to strike new directions in his exhibit for the show. The new direction took the form of a videotape recording of a nude speaking letters at random. Throughout the 24-minute presentation, the model did not move or make any types of movement except for the speaking portion.



FBI Agent Doesn't CPP Attends Law Session

ATLANTIC CITY – An attempted "citizen's arrest" of an FBI agent by the Computer People for Peace failed here because the agent did not appear as scheduled at a session on Law Enforcement and Judicial Administration.

CPP planned to give the agent, Jerome Daunt, of the National Crime Information System, a warrant charging him with "conspiracy to violate First Amendment Rights of the People by surveillance."

CPP also staged a 10-minute demonstration, disrupting the beginning of the meeting to press its demand for a chance to rebut the scheduled speakers. Session Chairman Saul I. Gass argued that CPP had its own sessions where it could state its views, but CPP countered that it wanted to debate the scheduled speakers.

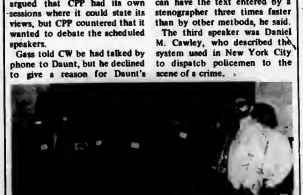
Gass told CW he had talked by phone to Daunt, but he declined to give a reason for Daunt's failure to appear.

After the protest, Alfred Blumstein of Carnegie-Mellon University discussed an interactive computer model of the criminal justice system, which he said could be used by people not trained in computer programming.

The model, according to Blumstein, allows a better understanding of how the criminal justice system actually functions.

Herbert Avram discussed a machine which translates courtroom stenographers' notes into computer output, and noted that its first use would be as a fast computer input terminal – a book to be computer typeset can have the text entered by a stenographer three times faster than by other meitboda, he said.

The third speaker was Daniel M. Cawley, who described the system used in New York City to dispatch policemen to the scene of a crime.



CPP members upstage Chairman Saul I. Gass (left) at session on Law Enforcement and Judicial Administration. (CW Photo)

CPMA Protests Bell 260 Tariff

ATLANTIC CITY – The Computer Peripherals Manufacturers Association has filed a protest against the AT&T 260 tariff with the Federal Communications Commission and will take all action necessary to prevent its implementation, Richard Caveney, CPMA president said last week.

Caveney said that his organization could not understand why the common carrier would have to intervene when several other organizations are planning to enter what must be a very lucrative business.

Caveney also stated that the independent manufacturers now clearly have the competitive technological advantage over the AT&T system. He said that competition should be encouraged in all areas of the communications business in both equipment and in services.

Caveney did not say whether action against the tariff would involve court action or not.

Not as 'Guild Member'

Grosch Cites Power of DPer as 'Concerned Citizen'

By Edward J. Bride
CW Staff Writer

ATLANTIC CITY – Computer people are most effective in interacting with society as individuals or "concerned citizens," not as "guild members" or technicians with special knowledge, according to Dr. H.R.J. Grosch of the National Bureau of Standards.

The guild members interact with society when such issues as DP salaries or professional ethics are discussed, and "special knowledge" technicians address public gatherings on privacy invasion or the ABM.

In the role of a "concerned citizen" a computer professional can truly relate to society, Grosch told an SJCC meeting last week.

The true professional must also question himself frequently, as to the "end, as well as the means," in his work. "You are not a professional unless you frequently ask yourself 'should I?' as well as 'can I?'", he said.

Other speakers on the "Menace or Messiah" panel agreed with Grosch's contention that DP people must be concerned citizens, but none were able to suggest the means to disassociate this concern from the "special knowledge" or "guild member" category.

Then, when panel members repeated the need to inform the public of the possibilities of the improper use of computers, six members of Computer Professionals for Peace marched through the audience at the Ballroom meeting, carrying placards announcing computers were a "menace."

The signs demanded less spending on military systems and more in social areas, and Grosch approved their effort as "concerned individuals."

Society Reaction

Peggy Ann Talbott, a graduate student at the University of Pennsylvania, asked whether society can react fast enough to change.

She said society needs effective long-range planning to foresee or cope with change.

"We must publicize the consequences of our ideas," she added, whether those consequences are good or bad. The possibilities for such publicity are better in the computer world than in other sciences, apparently because the public is so interested in computers.

But the public is not always willing to listen to harbingers of gloom. "How do you communicate, if the public is not willing to listen" to the dangers of computerized data banks, privacy invasion, or inaccuracies, she said.

Herbert S. Wilf, also of the University of Pennsylvania, repeated the need for an "enlightened citizenry" and some sort of regulation. He said when public pressure is applied, results are positive, and cited the halting of almospheric tests of nuclear weapons as a specific example.

The same type of public pressure is needed regarding the compilation of dossiers of personal information, Wilf claimed, saying that unregulated systems might be considered "hazardous to your health."

Nicholas Negroponte of MIT noted responsibility is easy, in simple systems, but "the real problem of responsibility arises in complex systems."

Session organizer Stanley Winkler of IBM said he was "appalled" at the apparent disinterest of computer society members, who leave policy powers in "the hands of a few," then complain about the results.

4 Newsmen Believe General Public Feels Threatened by DP

By Thomas J. Morton
CW Midwest Bureau

ATLANTIC CITY – Four newsmen – Jules Bergman, science editor of the American Broadcasting Company (ABC); John F. Lynch, Washington bureau chief for ABC News; Marshall Loeb, senior editor of *Time*; and Herbert Klein, President Nixon's communications director – told an SJCC audience that computers and computer people were just wonderful but the general public felt threatened by them anyhow.

Bergman, moderator of a panel entitled "Image of the Industry," stated he felt mankind, especially in this country, fears the threat of modern technology.

Bergman introduced *Time*'s Loeb by asking how to stop a computer from sending him more unwanted credit cards. Loeb didn't answer that question specifically, but instead told the audience of computer professionals that the industry in which they worked possesses a positive image in the country, as he saw it.

He cited examples, naming the space programs and the removal of drudgery from man's life. He said that he didn't believe computers were replacing people.

But, he added, he, too, felt that the public resented modern technology and that an "antitechnology backlash" was building. He claimed that the "backlash" was not going to be directed at the computer but rather at American business which, he said, is creating a negative image for the American public, especially the young.

Lynch, the ABC bureau chief, while admitting that he has had his share of fights with the "consumer computer," felt that the news media were generally impressed with computers because of accomplishments of DP in space, weaponry, medicine and research.

Lynch, speaking on the subject of computerized election results for network news telecasts, admitted the existence of the controversy of releasing projections of the outcome of elections into areas in which the polls are still open.

Klein described computers in government as "perhaps their best use as well as the most controversial." He readily admitted that the government was using computers to house and process information on American citizens, but cited examples of IRS, Medicare, Social Security and Justice. "No one," he said, "should object to the efficient use of data processing for proper law enforcement."

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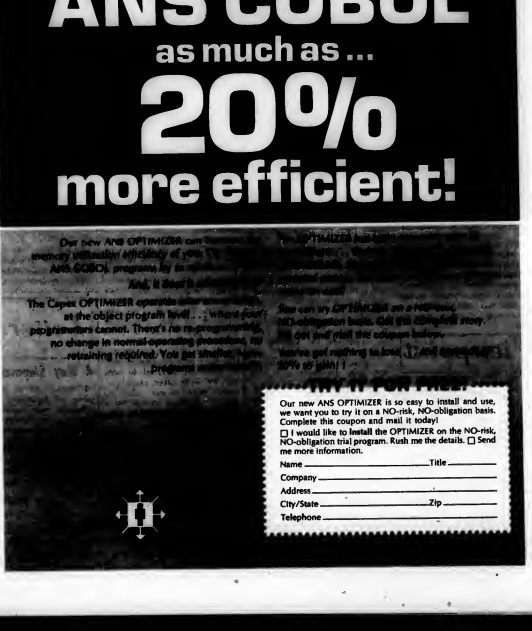


Editorial

The Credit Card Blues

Some general-purpose credit card systems are in serious trouble. Said one president, in announcing his bank was discontinuing cards, "Our losses from fraud have just gotten to the point that they have been fantastic."

Point-of-sale credit-validation systems will eliminate some of the problem by spotting lost and stolen cards. But these systems only work when the loss of the card has been reported – and it's sometimes days before the owner misses it and reports it lost.

The solution: develop a self-validating card. A magnetic strip on it would hold, in addition to the account number, the date of the last sale, the total amount charged that day, the total number of separate purchases that day, a set limit on the amount that could be charged in one day, and a limit on the number of purchases that could be made in one day.

Each time the card was inserted in a sales terminal, the terminal would check the date. If it was that day's date, it would check the number and amount of purchases that day against the limits.

If the limits had not been exceeded, the terminal would add the amount of the new purchases to the total and add one to the total of separate purchases. If no purchases had been made that day, it would record the new date, the amount of the sale, and reset the total for purchases to one.

But if the limits had been exceeded, the terminal would warn the clerk to make a further credit check before completing the sale.

Such a system would prevent thieves from charging thousands of dollars to the card before it was reported missing.

Education, Communication Can End Contract Suits

By Arnold B. Schacknow

As a computer professional of many years standing I view with alarm the increasing frequency of news articles about lawsuits arising from user-vendor contracts. Generally based on information from everybody except neutral, qualified computer experts, these articles leave the reading public with the impression that the vendors are always at fault. The public is beginning to believe that everybody in the computer industries is either a dum-dum or a charlatan selling systems that never work and bankrupting innocent corporations.

Viewpoint

I do not believe that the vendors are *never* at fault. Based on my own personal experience, the fault more frequently lies with the purchaser, who does not know his own requirements in terms of EDP systems, won't listen to anyone who can help him, and does not have qualified personnel to specify adequately his requirements, and to evaluate and select the vendors to supply his needs.

When the fault lies with the vendor, it is usually caused by his overzealous marketing, leading to selling a product or service which he cannot deliver at the contracted price or time schedule.

As a former company president, I cannot understand management which is ready to spend large sums of money on computer systems they know very little about, yet are reluctant to pay the salaries of qualified experts to protect their investment. Even the lucky ones who have purchased systems that work are frequently paying more for what they are getting then they should.

The real solution to the problem is to bridge the communications gap between the end user who pays the bill, and the analysts, programmers and engineers in the vendors' attics who have to implement the systems on time at a contracted price.

Contracts written by lawyers can only determine who will eventually win the lawsuit in case of a breach of contract. What really has to be done is to eliminate the causes of the breach of contract.

The key to the solution is education. The purchaser must know precisely what it is that he needs, and have the expertise to evaluate a vendor's capability to produce and deliver on time. The vendors, on the other hand, must learn to bridge the communications gap, so that they can supply their customers with what they really need and still make a fair profit in the process.

Arnold B. Schacknow is an EDP/MIS consultant.

'I Ran Better Than I Jump, Anyhow'

Bill Would Establish Body to Evaluate Technology's Impact and Society's Goals

WASHINGTON, D.C. – Technology has become a dirty word to many people – synonymous with urban decay, traffic congestion, decreased privacy and impairment of the environment.

Some of us involved in technology seem to have lost sight of this fact, and according to Sen. Warren G. Magnuson (D-Wash.), "our nation has lacked a national policy to consider the total collective impact, interaction and even gaps in our technologies in achieving our social goals. And we have lacked the information to make informed judgments.

D.C. Data-Line
By Alan Drattell

In a statement introducing S. 1800, a bill to establish an independent commission to evaluate and assess developments in the fields of commerce and technology, Magnuson added: "We lack a broad policy for considering the long-range effects and influence of new commercial technologies. We lack a future orientation that would anticipate some of our problems before they become economically or politically difficult to turn off. We have often placed excessive faith in our ability to correct problems caused by a misuse of technology by a 'technological fix.'

"Most of all, we have lacked the institutional means to consider coolly and objectively both what is feasible and what is socially desirable, and to integrate considerations of value judgments, social preferences, and our fiscal and human capabilities."

Magnuson stated that the proposal, also sponsored by Sen. Philip A. Hart (D-Mich.), is a working paper "to lay out for the scientific and engineering communities, industry and the citizen, a formulation of the basic problem: the need to improve the management of technology to meet all of society's goals" without destroying ourselves and our environment in the process.

The Commercial Technology Assessment Act of 1971, as envisioned by Magnuson and Hart, would provide for creation of an independent Technology Assessment Commission that would have a life span of 15 years.

The commission would, in essence, act as a review and assessment body of policies, plans and programs of industry and federal agencies and identify problem areas. It would also sponsor research as necessary and make periodic reports "in language that would foster citizen understanding of the increasing number of issues where science and engineering influence our lives so profoundly."

Added Hart: "As I see it, the commission would be designed to fill two basic voids within our regulatory system: that of insufficient knowledge of the effects of technology, and that of insufficient objectivity among the government agencies responsible for regulating such effects."

Membership on the commission will be limited to 15 full-time commissioners. They would have backgrounds in science, engineering, law and commerce, and several, according to Magnuson, "should be from the younger generation."

An additional interesting recommendation by the Washington senator is that since the commissioners' judgments are expected to be controversial "all should be well paid and serve long terms as protection from external pressure and intimidation."

The commissioners would be supported in their work by a multidisciplinary staff, and the proposed bill authorized up to $50 million a year in appropriations.

Magnuson said that the Senate's Commerce Committee's Subcommittee on the Environment will hold hearings shortly on the bill.

Letters to the Editor

A May Shipment.

I would like to correct one piece of information in the otherwise very accurate article May 12, on Photophysics '45' Series of CRT terminals.

The first shipments of all but the 2260-compatible models were in the fourth quarter of 1970. The first shipments of the 2260-compatible models were on May 1.

Philip Friedman
President
Photophysics
Mountain View, Calif.

A Lively Field

It is certainly strange that a man of Dr. Richard Hamming's stature could make the statement, "There is no way today of measuring hardware efficiency, software efficiency or results" [CW, May 5]. Especially with the articles that have been published in the past year by *Computerworld* and other publications.

We at Computer Synectics have been devoted to the measurement field for over two years. (IBM has been involved in measurement products since 1962 but does not publicize it.)

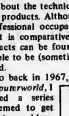
C. Dudley Warner
Chairman of the Board
Computer Synectics
Santa Clara, Calif.

A Revival of the Measure for Measure

Park Ridge's DPMA Claims Denied by Own Council

One of the most serious tasks I have had in my life was looking at the claims made by various hardware and software companies about the technical characteristics of their products. Although this has been my professional occupation for over 10 years, it is comparatively rare that the actual facts can be found without them being able to be (sometimes deliberately) confused.

And so back in 1967, at the beginning of *Computerworld*, I originated a series that seemed to get over this problem. The series was called "Measure for Measure" and while it did not directly look at the actual facts of a situation, it did look at the claims that were formally made for the product, and then looked at the basis on which they were substantiated. The idea was to put some sort of a limit to some of the more reckless claims that were being foisted on the industry.



To some extent it worked. It had some repercussions – advertisers started looking at their own claims a little bit more carefully – but it was, I think, a good way of dealing with some very ticklish situations.

The claims put forward in the literature published by DPMA International Headquarters do not exactly describe a software or hardware product. However, they do contain measures, and, because of some of the currently unresolved doubts about their accuracy, it seemed to me that a Measure for Measure was again the best way of handling this very ticklish situation. So here goes.

THE CLAIMS

1. DPMA has over 30,000 members.
2. DPMA is the world's largest professional organization serving the information processing and computer management community.
3. DPMA is active in nearly 300 chapters located throughout the free world.
4. The results of the CDP examination are validated by statistical techniques.
5. The CDP examination is the key to certification in EDP Management.

THE INVESTIGATION

In order to investigate these various claims put forward by the association's literature, I visited Chicago and spent some hours at International Headquarters.

I also examined a number of occasions, starting in July 1968 when DPMA had specifically announced its membership. At that time DPMA was claiming over 23,500 members, 225 chapters, and operations in the U.S., Canada, Japan and the Philippines.

By June 1969, in readiness for the Montreal conference, this had been upped to being over 27,000 members, 240 chapters. Activities were added in Vietnam, and Japan was deleted. Eight months later, in February 1970, this was again upped to nearly 30,000 members, 250 chapters, and Japan came back, together with both the Philippines and Vietnam.

The final raising of the claim, at least to date, occurred in preparation for the 1971 Houston conference, and now was for over 30,000 members, nearly 300 chapters, and operating throughout the free world.

Internal Figures

At the same time membership figures, as reported within the association, were found for some of these particular dates. For instance, in June 1969 when the claim was over 27,000 the actual figure was well under 27,000 – to be precise, 26,390, according to DPMA reports.

Moreover, immediately after the conference, and while the "over 27,000" claim was continuing to be used, the membership dropped down to 19,210, according to a report by James P. Sutton, vice-president of membership, who commented in his report that "very high current figures (around 20,000) were occurring as a result of the major activity which took place during the months of July and August 1969."

A divisional count at the time showed that there were only 60 members in the chapters outside the U.S. and Canada.

Then again in July 1970, when the claim was "nearly 30,000 members," Sutton's reports to the international directors indicate actual membership of 23,343.

At the time of the operation of the material for the 1971 Houston conference

Part of promotional piece on the DPMA 1971 International Data Processing Conference & Business Exposition in Houston.

(claiming over 30,000) the latest figures available were those of December 1970 where the membership was 26,373, and dropping.

Largest Society?

In investigating the second claim, that the DPMA was the world's largest organization serving the information processing industry, I obtained the membership figures for the ACM.

Like the DPMA, the ACM has more than one class of membership; however, in its reports, unlike DPMA, its membership is broken down. I found that as of December 1970 the ACM membership figures, including all classes, was over 27,000.

If DPMA's claimed figure of over 30,000 members had been accurate, DPMA would have been the largest organization – but Sutton's reports showed a figure (26,373) well below that of ACM.

Throughout the Free World

Investigating the third claim, that DPMA was operating throughout the free world, I first noted that all the members outside Canada and the U.S. are to be found in Division 15, which until recently was called "Foreign" division.

Division 15 recently consisted of about 60 members in about four chapters: in Japan, Vietnam, Philippines and Southeast Asia. No chapters were in South America, Europe, Australia or Africa – leaving a great majority of any definition of "the free world" totally uncovered.

Validation Claim

I investigated the fourth claim (that the CDP results were being validated statistically, through an examination of the results by the San Diego State College subsequent to the tests) by examining their reports to DPMA. In examining these reports I found that the basic statistical test being utilized was the Kuder-Richardson Formula 21. Donald McPherson, DPMA education director, on being asked, told me that he did not know this formula, and that the certification council placed "great reliance" on its consultant, Dr. Herman Roemmick of San Diego State.

I checked out the Kuder-Richardson formula and discovered that it assumed a basically homogeneous population had taken the tests. It also appears to assume that there are specifically known answers to questions, which will be most frequently obtained by large percentages of those obtaining high marks on other sections.

I then checked out these assumptions against the two major complaints about the test – that it discriminated against non-IBM, and non-U.S. takers.

In both these cases there are a substantial minority, or approximately 10% to 20%, and a large homogeneous majority. My investigation showed that the use of the Kuder-Richardson Formula 21 did not take these factors into account.

Under these circumstances it would appear that the so-called statistical validation of the terms provides no protection in any shape or form against the two main criticisms, and may, (by preferring questions which have high correlations) encourage such discrimination!

Month	Last Month Total FYTD	Renews this Mo (Current & Delin.)	Total Renews Accum. FYTD	New Members this Month	Total New & Renew 70-71 Mem. Accum.	Total Membership
July		8,830	8,830	413	9,243	23,343
Aug	9,243	1,704	10,534	350	11,297	24,597
Sept.	11,297	1,518	12,050	498	13,309	25,553
Oct.	13,309	1,519	13,589	888	15,518	26,032
Nov.	15,516	1,429	14,998	774	17,689	28,463
Dec.	17,689	878	15,874	418	18,983	28,373

Chart reproduced from International Committee Reports on membership statistics, July through December 1970, from James B. Sutton to chapter presidents, January 1971.

EDP Management?

In checking out the claim that a CDP was the key to EDP management, I again referenced the San Diego State report. The ones I used were the only ones made available since the first use of a new Management Principles section.

The reports showed that while the statistical correlation of data processing and equipment section for computer programming and software tests, etc., were in the respectable 0.83 and 0.86 area, the correlation for the Principles of Management was only 0.59.

The report commented that this low correlation raised the possibility that the Principles of Management tests "may not be directly related to management skills," and also that it appeared that "a number of the items (in the management area) fooled everybody." Neither Calvin Elliott nor MacPherson was able to explain these comments, nor did they appear to have known about them before I raised my questions.

VERDICTS

Based on these items, it appears that none of the above five claims has been substantiated by DPMA. Based on its own data, DPMA did not have the membership it claimed, and has, in fact, been consistently exaggerating its membership for years. It does not appear to be the world's largest information processing organization, nor does it operate throughout the free world as it claims.

The so-called validation by statistical methods of the validity of the CDP results has not been shown to be mathematically sound, and appears to result in, if anything, hurting the chances of minorities such as non-IBM users, or non-U.S. nationals.

Moreover, the claim that the certificate is the key to EDP management appears to be total nonsense in light of the concealed failure of the management section of the examination to produce other than almost chance success!

DPMA Is Worthwhile, But . . .

Well, there it is. Personally I still believe

> "The Certificate in Data Processing identifies those data processing people in management-oriented positions who have acquired a core of knowledge considered essential in this field. This certification program is one of the most important and most successful services offered by the Data Processing Management Association (DPMA), an international organization dedicated to the advancement of the art of information processing management.
>
> A principal thrust and purpose of the CDP program is the preparation of individuals for more responsible positions in the EDP industry – preparation for a career based on a high level of competence and integrity, the benefits of which will accrue to the individual, his company or organization and to society."

Reproduced From DPMA Flyer on Certification in EDP Management.

that DPMA has a great role to play. I know that no other organization can exert the same local strength that DPMA can to its members and its chapters can do. And I know that these strengths are going to be greatly needed during the years to come. But no matter how good DPMA is at the local level, no matter how much its work is needed and is valuable in other areas, the basic data and information processing community has to rely on – or even tolerate – in one of its major societies a whole series of misrepresentations and outright falsehoods is intolerable.

These must be cleaned up, and not merely must they be cleaned up but they must be seen to have been cleaned up.

If you are a supporter of this information processing community, whether or not you are a member of the DPMA or one of its officers, or one of its employees, you have a role to play in demanding that the society achieves the high standards in its headquarters that it expects its chapters to maintain.

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Don Leavitt checks APL Plus capabilities.

Ed Bride proves he is a hard worker.

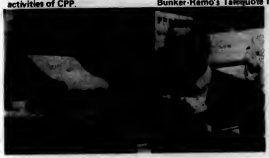
Frenk Piesta looks over Potter equipment.

CW Assignment: SJCC, Atlantic City

Joe Hanlon confers on the activities of CPP.

Michael Merritt finds some late quotes on Bunker-Remo's Takeouote III.

Ron Frenk, left, and Bob Patterson sort through a pile of press releases.



Alan Drettell inspects the new Decwriter.

Vic Farmer takes a drubbing at 3D Tic-Tac-Toe on the Lundy System 32.

Dreka Lundell inspects Ampex's 1800 series core memory boards.

Neal Wilder, Bob Byrne, Don Fagan, Bill Goodfellow, Bob Ziegel and Dottie Travis of the advertising staff huddle before the assault.

Leslie Flanegan tests the Teletype 38 terminal.

CW Photo Feature

By V.J. Farmer, Thomas J. Morton

Tom Morton discovers the properties of punched tape.

Molly Upton takes a bird's-eye picture of the SJCC tumult.

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10 Government/Military
12 Communications/Printing/Publishing
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Speakers Urge More Data User Participation

By Ronald A. Frank
CW Technical News Editor

ATLANTIC CITY – Data user participation is important to the future of efficient communications facilities.

This was the consensus of speakers at an SJCC session on "Present and Future Data Networks."

Dr. William Melody said that regulatory policy "will only be responsive as long as data users and the computer community continue to participate actively" in regulatory matters.

Melody, a former FCC staff member now on the University of Pennsylvania faculty, said that presently users must build their data networks "within severe constraints" adjusting individual needs to the limited service offerings of the existing carriers.

Open Market

If present FCC staff recommendations, he predicted, are implemented by the commission, regulatory policy will shift from a closed market dominated by existing "monopolistic" carriers to an environment of open communications markets with dynamic competitive firms.

If the FCC approves the entry of the proposed specialized common carriers such as MCI and Datran, Melody predicted the data user will have more service options and fewer restraints on his network configuration.

In response to a question about possible competition between the new carriers and AT&T, Melody said the new entrants will have to be protected from "predatory pricing" practices of the established carriers.

AT&T was represented at the session by Ray Svenson, manager of systems methodology, who said that the carrier is aware of complaints concerning the quality of telephone service. AT&T is currently working on a new program, he said, "to guarantee a minimum grade of service" to all users. He acknowledged that the biggest problem related to this project was the establishment of the minimum level criteria which could be used as basis for evaluation.

Svenson predicted it would take AT&T about a year or two to set such minimum levels. Therefore, he said, future customer complaints might typically lead to a 10-call series of test phone calls initiated from the user's site by the local Bell System company.

If the average service results of the 10 calls did not meet minimum standards, Svenson said appropriate modifications to the customer's facilities would be made.

The specialized carriers were represented at the meeting by David Gourley, vice-president of marketing for Datran, who said that his firm would be able to offer users rates "40 to 60% less than current services."

Although he did not predict a date for either FCC approval of the Datran application or when his firm could begin operations, Gourley said that some outlying customers may be connected to Datran's proposed facilities through existing carrier lines. Previously Datran said it would operate completely separate from existing carriers.

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Potter Terminals Use Control Unit to Transfer Data

By Frank Pinata
CW Staff Writer

ATLANTIC CITY – Potter Instrument Co. chose the SJCC to introduce a line of low-cost IBM 2780-compatible data terminals. Available in several configurations, the terminals have a binary synchronous control unit to perform all necessary functions to transfer data directly on-line to the central computer or off-line to a terminal.

The company also introduced a communications system intended to be the principal link between a central CPU and remote data terminals, removing communications operation from the computer and increasing available processing time.

The most versatile of the data terminals, according to Potter, is the RBT 6786, consisting of a KDR key-to-tape unit and an LP 3000-line printer capable of one hundred and thirty-five 132-character line/min.

In a typical application, the company said, an operator at a remote site keys in daily transactions off-line and at some scheduled time transmits this data to the computer.

Model RBT 6783 is a receive-only print terminal with a control unit and the LP 3000 printer. The unit is compatible with the IBM 2780 Model 3, Potter said, and operates 20 times faster than usual serial printers.

Model 6788 is a send/receive terminal which offers the read/write capabilities of the KDR key-to-tape entry unit for dsts entry transmission and reception.

Automatic answer is standard on all models. Direct distance dialing or privately leased lines may be used. The terminals are designed to operate with Bell 201 and 202 data sets.

With the 202 modem, transmission speed will be 1,200 bit/sec for both public and private lines. Using the 201, direct dial systems will operate at 2,000 bit/sec and at 2,000 or 2,400 bit/sec over private lines. When operating off-line between two terminals, the control unit will allow 1,800 bit/sec operation. Either Ascii or Ebcdic formats can be used.

The price of the 6783 will be $400/mo or $18,000. The 6786 will cost $590/mo or $52,550, and the 6788 is priced at $365/mo or $16,425. First deliveries are scheduled for fourth quarter 1971.

The Potter DTC6500 Data Transmission Control System consists of a medium-speed tape unit, a minicomputer control unit using bisynchronous communications techniques and an optional 135 line/min printer.

After processing, tape is returned to the DCT 6500, where it is unblocked, assigned terminal codes and transmitted to the terminals.

The DCT 6500 is priced at $980/mo, including tape and printer, and sells for $44,000.

Current plans call for first shipments in the second quarter of 1972 from 532 Broad Hollow Road, Melville, N.Y., 11746.

Computer, Foremen Get Along Fine

SANTA MONICA, Calif. – A computer that has 47 programmed responses communicates with foremen at the Buick Motor Division plant in Santa Monica. Instead of using a time clock for employees, they are given a small plastic card which is inserted into a device that records the information instantly at a central computer.

The foremen can then ask for and receive information they need on the number of employees reporting to work and the types of job classifications they are in.

The computer also figures the time and weekly earnings for each employee.

Called "Time and Attendance Feedback System," about 63% of the hourly employees are on the system.

HEW Official Tells How to Arrive At Equitable Pricing for DP Time

ATLANTIC CITY – Methods by a federal agency to arrive at an equitable pricing formula for computer time were discussed at the SJCC meeting of the ACM Special Interest Group on Computer System Installation Management (Sigcosim).

The session was conducted by Robert Mason of the Department of Health, Education and Welfare (HEW).

The problem involved determining an algorithm for a time-sharing computer installation that would yield consistent results. The construction of the algorithm was complicated by the need to consider the actual cost of machinery utilized by the user and the quality of service in terms of priority services provided.

Mason said that his agency charged on the basis of resources used and connect time, with requests for priority status taken into consideration.

The methodology used at HEW included determinstion of variables, allocation of cost segments, setting policy on resource usage, determination of the terms in the algorithm.

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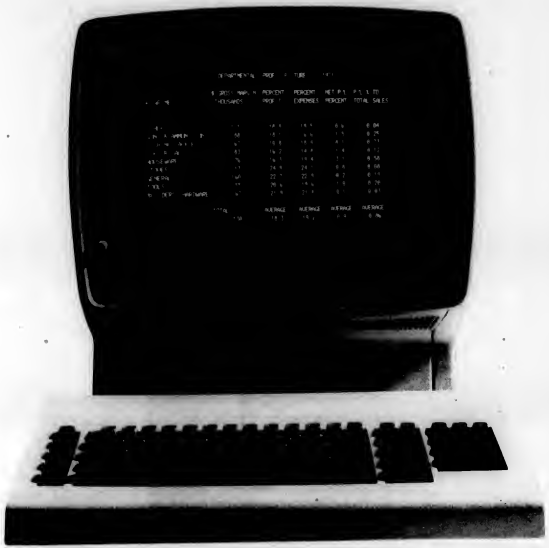

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And to protect your information you can add safeguards – including a new card reader. It permits only persons with specially coded magnetic cards to use your system.

Your 3270 system can be a single terminal that displays up to 1920 characters of information. Or one that displays 480. Either screen gives you a brighter, steadier image than ever before.

Your 3270 system can include printers that produce 66 characters a second. And ones that go at 40 characters a second.

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If you're in insurance, you could improve customer service by checking policyholder records while the customer or agent is on the phone.

If you're in banking, you could quickly check and update the status of any customer account.

If you're in health care, you could use the optional Selector Light Pen to order prescriptions or laboratory tests.

If you're in manufacturing, you could keep track of production by comparing the current status of work in process against schedules.

Whatever business you're in, IBM's 3270 system gives you all the advantages of displays: the ability to get information in and out of your computer in a flash.

Plus one more advantage: the ability to put together the information display system that's just right for you.

And, of course, you can use it with System/370 and System/360.

The IBM 3270 Information Display System. It's worth looking into.

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Preston Sharing Delayed As FCC Reconsiders Plan

By Don Leavitt
CW Staff Writer

WASHINGTON, D.C. – The FCC is taking a second look at a 480-mile, 720-channel microwave system that it had originally approved in the New York, New Jersey, Pennsylvania area. Preston Trucking Co. Inc. had received authorization for the system in February, but has now been notified not to start operations until the commission can review several petitions for reconsideration.

The petitions argue that the shared microwave radio system is not authorized under the commission's present rules. The plan, as approved, calls for Transportation Microwave Co. (TMC) to build, own and maintain the system, and to make it available under lease arrangements, to Preston and other trucking carriers at fixed rates.

The Preston plan would provide teletype-grade channels with data transmission rates up to 150 bit/sec for input to DP centers where freight invoices and other data will be processed.

According to Microwave Communications Inc. and MCI-New York West, Inc., this plan would allow TMC to offer one of the types of service that MCI itself plans to provide. This would classify TMC as a common carrier, according to MCI.

The Preston application is being handled by the FCC's Safety and Special Services section, which operates under different FCC regulations than the Common Carrier Bureau.

Burch Says Carrier Decision Due Soon

WASHINGTON, D.C. – The Federal Communications Commission expects to make a decision on authorizing the specialized common carriers "within the next few months," Chairman Dean Burch told a congressional subcommittee recently.

In a biennial review of commission activities, Burch said the FCC has received applications from 33 different entities, each proposing specialized common carrier service.

The staff of the Common Carrier Bureau has found that competitive entry in this area is feasible and in the public interest, but the commission has not yet resolved all the policy questions it faces before it can make a final ruling, Burch said.

The FCC is currently studying 10 applications for domestic satellite systems, Burch told the House committee. The applications propose a wide range of capabilities including long distance common carrier service and digital data services, he said.

Turning to more conventional carrier problems, Burch noted that AT&T has deferred indefinitely at the suggestion of the commission s tariff proposing sharply higher long-distance rates to be effective in January. In its place AT&T is currently operating under a tariff filing providing a lower increase, Burch said.

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Data Briefs

4:1 Throughput Gain Claimed for Data Set

CLEARWATER, Fla. – The Bisync-48 data modem from Paradyne Corp. is said to give a 4 to 1 throughput improvement over dial-up lines with guaranteed error-free transmission. The unit provides a true throughput of 4,800 bit/sec, the company said.

The modem costs $6,450 from 2040 Calumet St., 33515.

Range of Data Rates Supported by Modem

SHAWNEE MISSION, Kan. – The DS-9600 data modem gives a choice of data rates, from 3,600 bit/sec to 9,600 bit/sec, and requires C2 line conditioning, according to United Business Communications, Inc.

Intended for use with high-speed terminals in a point-to-point private line network, the DS-9600 includes a data quality monitor and built-in diagnostics, for $11,500 from 6405 Metcalf, 66202.

Reverse Channel Added

EAST RUTHERFORD, N.J. – A reverse supervisory channel for error detection and correction is available for the ITT 2003 modem.

The ITT 2003 modem is priced at $1,430 and the new channel option costs approximately $200 from E. Union Ave., 07073.

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We've found another way to save you money on your memory.

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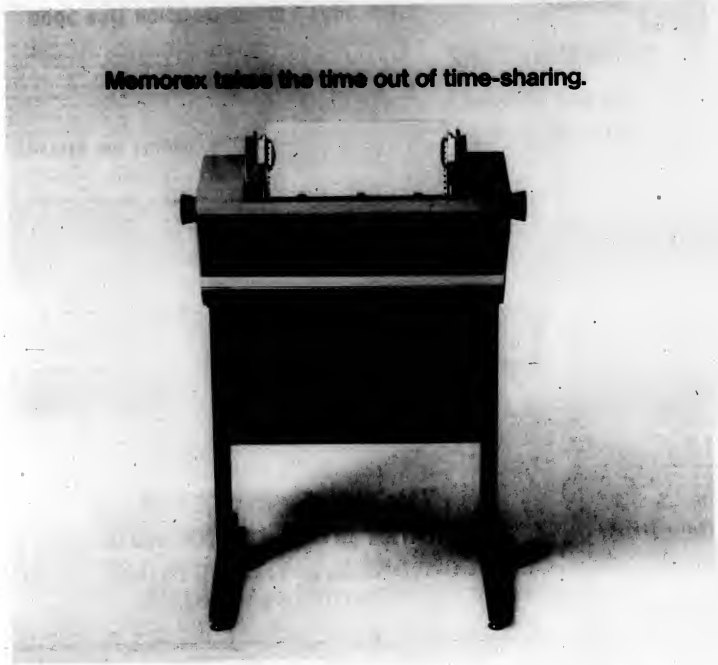

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Random Notes

IBM DOS Cobol Ready, Allows Buffered Isam Use

WHITE PLAINS, N.Y. – The IBM DOS versions of the ANS Cobol compiler and library are available now with several features not previously announced, according to the company.

Double buffered use of Indexed Sequential Access Method (Isam) files allows faster sequential processing. The packages also support the IBM 3211 printer. When used on the 370, they can take advantage of the 370 instruction set, IBM said. Monthly charge for the compiler is $55 and $20 for the library.

Data Base Technical Report Being Distributed by ACM

NEW YORK – A 500-page technical report entitled "Feature Analysis of Generalized Data Base Management Systems" is available for $8 from the Association of Computing Machinery Inc. (ACM).

Prepared by the Codasyl Systems Committee, the study is based on 10 typical systems. The report is seid to give considerable space to data structure concepts and the data definition languages used to define such structures. ACM is at 1133 Avenue of the Americas, 10035.

Business Language Improved On International T/S Net

MINNEAPOLIS, Minn. – Users of the International Timesherlng Corp. (ITS) network next month will be able to use an improved version of BPL, the Business Planning Language for financial modeling. Users will also have 32K bytes of core available in the interactive time-sharing mode, ITS said from 4620 West 77th St., 55435.

Tire Reports, Recall Notices Produced at NCR Data Centers

DAYTON, Ohio – Tire menufacturers, retreading firms and brand neme owners will be able to comply with federal regulations on identification and record keeping, with the Tire Registration Program service available at NCR data centers.

The service will provide periodic reports required by the government and recall notices for tires when menufacturing defects are discovered.

'Datamacs' Prices Increased

PHILADELPHIA – The price of the Datamacs test date generator will be raised starting June 1, according to the developer, Management and Computer Services Inc. (Macs).

The DOS/360 version of Datamacs will increase from $4,500 to $6,500, while the OS/360 version will go up from $4,500 to $6,500. Macs is at 104 Park Towne Place East, 19130.

Cyphernet Aids Column Designers

ANN ARBOR, Mich. – Users in the Midwest are able to access the American Institute of Steel Construction Column Design (Aisco®) program on the Cyphernet time-sharing network in order to select columns for axial load. Moments around major and/or minor axes are also determined. In addition, the Cyphernet network will be extended to the East Coast in the near future, the company said from 333 Maple Village Center.

Centaur-II Uses 360

Package Estimates Programming Times

SHAWNEE MISSION, Kan. – DP managers can obtain objective time estimates for a programming job based on minimum program parameters and a user-provided evaluation of assigned programmers, with the Centaur-II system from Custom Programming Inc. (CPI).

The eight programs of the system can be used on an IBM 360, NCR Century or Univac 9000 series CPU, but the estimates are not limited to programs for those machines, CPI said.

In his project definition, the user specifies the proposed source language and the number and types of files to be used. Any reports to be generated have to be defined, but only in terms of whether they entail detail or summary printing, or both.

The user's evaluation of programmers involves rating scale of 10 classes. Management can consider a programmer in one class for one job and a different class for another, based on skill.

A "feedback" capability under which the programmers enter the actual time they spend on jobs is used to build a history file. This can be used to weight the estimating factors built into the system so that they accurately reflect the user's experience, CPI said.

CPI is presently setting up pilot installations to gain field tests of the system which is written in Cobol and has been in use at CPI for more than a year. Once fully tested the Centaur-II package will lease for "under $100/mo" although a specific price has not yet been established. Custom Programming Inc. is at 4949 Johnson Drive, 66222.

Developer Says 'Pamuse' Eases Programming, Transferability

HOUSTON – The problems of transferring application programs from one computer system to another and controlling the cost of application programming may be solved with the Pamuse general-purpose, machine-independent operating system being developed by First Business Computing.

Pamuse is intended to replace many of the functions of IBM's OS/360. It does not directly support the normal programming languages but provides a new series of languages of its own.

At the highest level Pamuse includes a user command language designed for use by non-programmers. Next is an applications language for users with programming experience. Finally, a systems language level allows access to all Pamuse modules by systems programmers.

The command language is called the Applications User's Language (AUL), which is translated and then handled interpretively by another element of the Pamuse system. AUL is essentially a substitute for IBM's JCL, a spokesman said.

The Application Implementation Language (AIL), a scientific dialect of PL/1, is used for most applications programming.

The OS/360 version of Pamuse is expected to be complete by October. Subsequently, Pamuse will be adapted for use on the Univac 1100, the CDC 6000 and other large-scale systems, the firm said. First business can be reached through P.O. Box 20546, 77025.

Honeywell Extends Bank Support

WELLESLEY HILLS, Mass. – Honeywell Information Systems has added software support for banks and financial management organizations across a range of the company's equipment.

The Teller Register Unit Monitoring Program (Trump), originally written for on-line and batch processing applications on large-scale CPUs, has been rewritten for use on the smaller Series 200, Model 115.

The smaller Trump requires a dedicated CPU and provides the major elements of an on-line system. These include a monitor, communications I/O, data management, and recovery, the company said.

Two versions of Bank Information System Network (Bisnet) software are said to provide solutions to a bank's data management problems. Working with either the Series 400 or Series 6000 CPUs, Bisnet maintains an integrated data base which describes all of a customer's relationships with a bank. Bisnet utilizes part of the logic of Integrated Data Store, HIS data base management system.

The Document Entry Subsystem for the Series 6000 (DES 6000) is being developed for the input processing of magnetically and optically encoded documents.

Application programs recently developed for the Series 200 include a mortgage banking system and a mortgage loan accounting system.

The dedicated Trump version requires a 32K Series 200, Model 115 with advanced programming and editing instructions, and three read/write channels. Bisnet 400 uses a 32K Series 400 with the DAP 930 Direct Access Package, two disk drives and a Datanet 30 communicstions processor.

A memory of 65K words, four tape units, disk storage and communications processor are needed with a Series 6000 CPU for the larger Bisnet, which is scheduled for delivery in early 1972.

DES 6000 will be operational by the second quarter of next year, the company said.

360 Hosts DEC PDP-11 Programs With 'ATI-11' Cross-Assembler

CHAMPAIGN, Ill. – A 64K IBM 360 serves as a host machine for development of programs to be run on a DEC PDP-11, with the ATI-11 Assembler from Automation Techniques Inc. (ATI). The package provides the user with a superset of the standard PAL source language, the company said.

Programs that use any of the PAL extensions must be reassembled on the 360, but programs that stay within the standard PDP-11 language may use either the 360 or the DEC CPU. The ATI-11 package on the 360 will, however, provide a cross-reference index with each program listing, a debugging tool that is not available with assemblies on the PDP-11.

The ATI-11 Assembler is available for a one-time lease price of $2,500 from Five Henson Place, 61820.

Chart Data Digitized, Then Analyzed Using Visicon Service and Software

STATE COLLEGE, Pa. – Graphs, charts, drawings and other graphic illustrations can be used as input data for IBM 360s, through a digitizing service and associated software package available from Visicon Inc.

Data from documents up to 11 in. by 17 in. can be digitized under the service, Visicon said, with resolution of 100 point/in. The output can be either raw data for customer processing or a fully processed tape or card file.

The software is written in Basic and has been implemented on an IBM 360, CDC 6000 and Univac 1108 processors.

Software is available on a three year lease for $4,500. Visicon Inc. can be reached through P.O. Box 1008, 16801.

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Time for Sale—II

Seller Must Weigh Effort vs. Income

By Don Leavitt
CW Staff Writer

Probably every EDP manager has wondered whether he should try to sell time on his in-house installation to outside users.

Certainly if he has ever bought time from others, he knows there are potential buyers.

What are the factors to consider? Is there any way in which he can realistically estimate whether he will get any buyers, and even if he does, whether the sales will be worth the effort?

The most basic rule for the casual seller of computer time seems obvious and yet is sometimes disregarded.

The potential seller shouldn't install a machine bigger than his own anticipated workload can justify.

The sale of excess time can only be effective if the available machine is a desirable configuration and if potential buyers are aware of its availability.

A midwestern organization told CW that it had to make a conscious effort to sell excess time.

He noted that, even though his efforts were effective and his company made money from selling CPU time, upper management felt that it distracted him from his primary EDP responsibilities.

Almost all sellers contacted mentioned that at least one representative of the seller should be present whenever a buyer used the equipment.

Sellers also add an element of built-in protection for their equipment by selling time on a "clock hour" basis.

They find that only those buyers that are competent enough to use total time effectively are willing to buy time under those terms.

Although most sales of excess time occur on third shift or weekend time, some sellers have made second or even first shift time available.

While this rescheduling may bring in income, it will, of course, also mean that the in-house work, bumped from its normal processing time, still has to be done, probably against a deadline.

DEC Strengthens PDP-15 Support

MAYNARD, Mass. – Modifications to the foreground/background programming system for the PDP-15 make it easier to use and more adaptable to specific tasks including peripheral sharing, according to DEC. The changes are said to guarantee 100% computer utilization by allowing larger models of the PDP-15 to perform several tasks concurrently.

The system, which requires 16K words of core, is offered without cost to PDP-15 users.

We've made a great computer a lot better.

Varian's new 620/L has a dramatic price/performance ratio that gives more computer in less space at lower cost. The 620/L is an advanced design of the reliable, field-proven (over 1300 installed worldwide), systems-oriented 620/i computer.

Priced at only $7700, the 620/L has an 8K, 16-bit, high-performance memory that can be expanded to 32K inexpensively. Each 4K memory increment is $2300. What's more, if you don't need 8K, you'll find the basic 4K, 16-bit 620/L very attractive at $5400!

The 620/L is small, so small that when fully expanded—a 32,768-word system with all main frame options and up to eight peripheral controllers—fits into just 21 inches of rack height.

The 620/L is 100% I/O-and software-compatible with the 620/i, and new peripherals and software have been added. All peripherals, software, and application packages (developed for earlier 620 models), as well as the 620/L itself, are off-the-shelf.

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WHAT'S AHEAD for the computer industry in the 1970's, as the recession draws to an end?

HOW WILL the mainframe builders fare? The independent peripheral makers? The crowded service and software industry?

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Bits & Pieces

Fixed-Head Disk Systems Work With Honeywell 316

SUNNYVALE, Calif. – Disk memory systems that are software compatible with the Honeywell 316 and DDP-516 are available from Deta Disc, Inc. The 1717 Disc Memory System has five models which are plug and program compatible with the Honeywell X16-931X Drum Storage System, and can use all Honeywell software, except for the Exec 16, Data Disc said.

Capacities available include 32K to 524K words. Average access time for the head/track devices is 17 msec. The units feature write protect, parity checking and e two-year warranty.

Prices start at $6,700 for a 32K word system which can be field expanded. Delivery is 60 days from 686 W. Maude Ave., 94086.

Dicom Cassette-Based System Replaces Paper Tape on Minis

SUNNYVALE, Calif. – A software/hardware system from Dicom Industries, Inc., the Cassette Magnetic Tape Operating System (CMTOS), provides Data General, DEC or H-P users with system capabilities previously available only in multiple-transport mag tape systems, according to the company.

Based on the Dicom 344, the CMTOS replaces all paper tape functions. Executive interpreted keyboard commands direct multipass assemblies, compilations and system utility functions.

One transport contains the systems library and a second transport handles the input data. The output is written on the third transport.

CMTOS can be leased for $169/mo from 715 N. Pastoria Ave., 94086.

3 Optional Keyboards Offered For Executerm CRT Terminals

PHOENIX – Three optional keyboard arrangements from Courier Terminal Systems can be used with its Executerm E-60 CRT-display Terminel. They include a standard alphanumeric Inquiry Keyboard (TE-02), an expanded alphanumeric inquiry keyboard (TE-12) and e data entry keyboard (TE-12DE).

The expanded alphanumeric inquiry and data entry keyboards are equipped with a set of special transaction keys and incorporate an audible signal which sounds each time a character is keyed into the terminal memory.

Courier Terminal Systems is at 2202 E. University Drive, 85034.

Cabinet Stores Tapes in Drawers

MINNEAPOLIS – The all-steel Series 4300 storage cabinets are intended by the manufacturer, the International Computer Appliance Corp., for the storage of microfilm, computer reels, disk packs and MT/ST tapes.

The cabinets stand 78 in. tall and measure 36 in. wide and 20 in. deep. They can be equipped with 8, 10, 13 or 16 drawers mounted on extension slides with a capacity 150 lbs/drawer. Two-hundred, sixty-six 1,000-ft tape reels can be stored, the company said, behind locked doors. Prices start at $375 from 200 N. Third St., 55401.

Holster Protects Cards, Punch

LOS ANGELES – The Beemak Tab Card Holster provides a convenient and safe method for carrying 80-column cards and punch. The holster is priced at $2 and is available on a 10-day delivery schedule from 7424 Santa Monica Blvd., 90046.

Low-Cost HP Mini Has 980 nsec Cycle

By Frank Piasta
CW Staff Writer

PALO ALTO, Calif. – A faster low-cost mini, a 1,600 bit/in magnetic tape drive, and a cartridge and fixed disk system have been added to the 2100 Series by Hewlett-Packard.

The 2100A minicomputer is faster, more versatile and lower in cost than the preceding 2114, 2115 and 2116 models, HP said. It is completely compatible with all existing HP computers, peripherals and software.

The 2100A has a 16-bit word length and can contain from 4K to 32K words of core memory within its mainframe. With a memory cycle time of 980 nsec, it is 40% to 100% faster than its predecessors. A solid-state 1K word ROM is used to implement control logic for the unit.

Fourteen internal I/O channels, externally expandable to 45, are provided. A dual-channel direct memory access (DMA) is available allowing data to be transferred to or from memory at rates greater than 1 Mword/sec. Prices start at $6,900 with first deliveries scheduled for October 1971.

The 7900A disk drive is claimed by HP to have the fastest response time of any rack-mounted disk cartridge memory now available. It can access an on-line data base of five 8-bit words in an average total time of 50 msec. Average head-positioning time is under 40 msec and average rotational delay is 12.5 msec. A photo-optical system is used to position the unit's four heads.

First deliveries will be made in November at a price of $16,000.

The 7970 magnetic tape transport offers users of the HP mini a single-capstan drive with a packing density of 1,600 bit/in. and speeds up to 45 in./sec.

The drives are offered in two basic configurations, Model 7970E (phase encoded) and Model 7970B (NRZI). Basic versions of the drive have speed ranges from 10 to 45 in./sec, data transfer rates of up to 72K bit/sec and 160 in./sec fast rewind.

The drives come in 7- or 9-track read-after-write, 7- or 9-track read-only, and 7- and 9-track read/read/NRZI/read PE configurations.

Single unit prices for the Series 7970 drives range from $3,900 for a basic model 7970B to $8,650 for the most sophisticated 790E. First deliveries will be made in December 1971.

System Maintenance-Part II
System Owner Gains Flexibility

By Frank Piasta
CW Staff Writer

The user who owns his computer has more flexibility than does the user who rents when it comes to maintenance of his system. The manufacturer can not specify who must do the service, so the user can either do it himself or bring in a third-party. He can also stay with the manufacturer.

Training one's own personnel appeals to certain types of installations, notably those that have manpower available at low cost. The service branches and engineering schools are representative of this type. There probably is not a manufacturer that would be unwilling to train a customer's personnel at a price. And that cost can be considerable. One manufacturer, whose rates might be considered typical, charges more than $400/week/man for tuition and texts. Courses can range from two weeks to eight or nine months in length and the user has to assume all expenses for his trainees.

The alternative to self-maintenance and manufacturer maintenance is to bring in a third-party company. At the present time, Comma is the only company performing maintenance on small 360 installations. RCA Service Co. will maintain almost any kind of equipment for a price, but the company told CW it is interested only in sites that can support in-house resident maintenance personnel. In other words, small users need not apply.

Comma, which may prove to be the first of several companies vying for the maintenance business, can provide service for some third-party leased computers as well as purchased systems.

According to a company spokesman, the company offers a higher level of service than does IBM. Starting with better qualified people, the firm also claims to be more flexible and responsive to the needs of its customers. Firm policies implemented on a national level which might interfere with adaptation to a particular installation's needs do not exist.

According to Comma, an IBM 360 or second-generation user can save about 10% compared to IBM's prices. In addition, a decrease of 28% in the rate for service calls outside of contracted hours can mean a difference of as much as 30% to some users, the company said.

The third-party maintenance firms, by offering one-source service to mixed sites, could eliminate the conflicts between maintenance groups that have been experienced by some users. Other users, however, maintain that a high level of cooperation exists between the two teams, with each going out of its way to help the other group.

Fiche Viewer Offers Zoom, User Has Choke of Lenses

MENOMONIE FALLS, Wis. – The Vantage microfiche reader from Realist, Inc. has interchangeable objective lenses with magnification ratios from 10X to 120X.

The unit also features a Vari-Optic magnification control that works like a zoom lens to extend the power of any lens by 25%, permitting one lens to be used with several reduction ratios, while giving increased magnification for clearer detail.

The 9 in. by 12 in. screen is available in both horizontal and vertical formats. The price, including choice of one lens, is $180. Additional lenses can be purchased for $45/each. The reader is currently available from N93 W16288 Megal Drive, 53051.

NCR Intelligent Terminal Intended for Teller Use

DAYTON, Ohio – A terminal that is said to place the power of a minicomputer in the hands of a bank teller for up to 1,280 functions formerly accomplished by the central computer, the NCR 270 Financial System is designed to provide arror-free service for depositors and reduce teller training time.

The system is built around data terminals linked on-line to a central computer. Designed primarily for use with the NCR Century Series, the 270 system is compatible with other manufacturers' DP equipment, NCR said.

The lead-through keyboard, described by NCR as an innovation, guides the teller through every transaction. Another feature allows the terminal to operate on its own if there is an interruption in the computer link.

The 270 can be used by institutions without computer equipment through one of the on-line data centers operated by NCR through the U.S. and Canada, the company said.

Correctly entered data is transmitted via telephone line to the computer which can update its files and cause the terminal to print the updated data on the depositor's documents and in its own journal.

The 270 can perform check-digit verification. An alpha-message display can provide up to 56 messages about condition or status of the terminal, the system, or the account being processed. Communications control is included.

A two-station printer allows entry on the passbook and journal tape simultaneously.

The teller terminal is priced at $9,700 and can be leased at prices starting at $260/mo. First deliveries are scheduled for the third quarter of 1972, NCR said.

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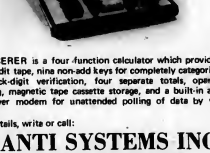

The SORCERER is a four-function calculator which provides a printed audit tape, nine non-add keys for completely categorizing data, check-digit verification, four separate totals, operator monitoring, magnetic tape cassette storage, and a built-in automatic-answer modem for unattended polling of data by your computer.

For full details, write or call:

TRANTI SYSTEMS INC.

540 Main Street Tewksbury, Mass. 01876
617-851-4288

Calcomp Offers Used Plotters at Savings up to 40%

ANAHEIM, Calif. – Users are being offered three models of reconditioned digital plotters by California Computer Products (Calcomp) at prices that are up to 40% lower than comparable new units.

Models available include the Model 565 and Model 563 drum plotters, and the Model 835 microfilm system.

The drum plotters have a maximum operating speed of up to 300 increment/sec. They can be used as remote and/or time-shared units, and are equipped to use ballpoint pens, with liquid ink as an option.

The 565 has a 12 in. drum that can plot an X-axis 120 ft. and a Y-axis of 11 in. The 563 uses a 30 in. drum that can plot a 29-1/2 in. Y-axis and an X-axis 120 ft. long.

The Calcomp Model 835 electronic plotter can record a display on the face of a CRT, which is transmitted through a lens system, reduced and recorded onto 16mm or 35mm film. The plotting area on the CRT appears as a standard 0.733 in. by 1.133 in. frame on 35mm film. The plot area for 16mm film is 0.273 by 0.364 in.

Maximum incremental rate, on-line, is 100,000/sec, or off-line up to 33,000/sec.

The reconditioned Model 565 drum plotter is now priced at $3,202, from $4,536; Model 563 at $4,630 from $6,584. Model 835 is available at $28,782 from $52,020. Calcomp said lower prices would apply in areas located within 75 miles of an established service center.

Delivery of the units is within 30 days, from 2411 W. LaPalma Ave.

Terminal Replaces TTYs

LOS ANGELES – The Kalltype acoustically coupled portable terminal from Kallman Research Corp. is used in conjunction with a standard electric typewriter to replace teletypewriters.

The device, consisting of a keyboard designed to fit over the typewriter keys and a console, is said to require minimal training.

The unit is equipped with an optional magnetic tape cassette unit which allows the recording of data to be transmitted at 30 char/sec.

Unattended answering, which can either print received data on the typewriter or record it on the cassette, is also available.

The Kalltype transmits and receives in upper and lower case. It can transmit between Kalltypes, or to and from teletypewriter and computers, the company said.

The device is intended to be used in a teletypewriter network for in-plant and remote alphanumeric communications. It can be connected to time-shared and other remote computer networks.

The unit is designed to replace such units as the Teletype 33 ASR, which, although it lacks the upper case capability, has a much lower selling price ranging from $800 to $950 in the ASR configuration. Upper case is offered through the recently announced Teletype 38 at prices from $100 to $200 more than the 33.

The device is being initially offered in the western U.S. at a price of $2,800. National distribution, the company said, is scheduled to begin by the end of this year from 1100 Glendon Ave.

Electric Wastebasket Features Window

NEW YORK – The Electric Wastebasket Corp.'s Double-Take model in its Destroyit Paper Shredder line is about the size of a normal wastebasket and can accept paper to 8-3/4 in. wide. The unit features a window to monitor the amount of waste gathered. The unit is priced at $235 from 145 W. 45 St., 10036.

Would you buy it without going inside?

If anybody offers you a price that looks better than ours, you'd better make sure you know exactly what you're getting.

We've just built a low-priced FDM data transmission system that's the best value on the market: the GTE Lenkurt model 25C. Go inside and take a look around . . . you'll find intermixable speeds from 110 to 600 baud. You'll find a built-in 20 mA local telegraph interface for on-premises printer applications. You'll find local/remote test features and a built-in carrier alarm lamp. You'll find it meets TTL, S-level and EIA/CCITT interface standards. And you'll find all the quality and precision we've been known for during 25 years of building data transmission systems.

The 25C comes as an attractive single-channel subset. Or the same duplex channel unit can be shelf mounted — up to 8 channels per shelf with a maximum of 18 channels (110 baud) on each VF line. So it lets you use just one voice channel rather than a lot of data lines. And it lets you do it at a very reasonable price. Add to that the 25C's economy of maintenance and you end up with a bundle of savings.

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This is Mohawk Data Sciences' SYSTEM 2400 Peripheral Processor in its full data-satellite configuration. (Because it's modular, you could design more complex systems if you needed to.) It can take care of all your utility needs off-line.

SYSTEM 2400 is capable of concurrent I/O operation. It can edit, test, detect, list and correct errors, sort, collate, block and unblock, print, and transmit at up to 9600 bps.

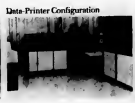
With up to 32K bytes available, SYSTEM 2400 can take all the small jobs off your main frame, even when some of those small jobs have gotten pretty big.

We devised a new language to run the 2400. It's so simple that most anyone in the world can learn it in three days. Which means you can use your programmers where they belong...on main frame jobs.

SYSTEM 2400 is something like a maxi-channel, and something like a minicomputer. Except that it does more than either. And because we make everything in the system ourselves, it costs less, too. You can configure it to start as low as $600. So while you're taking a load off your computer, you can take one off your EDP budget, too.

Truly, peripherals have come of age. Mohawk Data SYSTEM 2400.

Data-Editor Configuration


Data-Printer Configuration

Data-Communicator Configuration

Data-Converter Configuration

Data-Sorter/Collator Configuration

Mohawk Data Sciences Corp.
Herkimer, New York

AED Users Form Group

BOSTON – Users of the AED System, a method of constructing computer software that utilizes current techniques and tools, recently founded a formal user group at a meeting here.

The new AED User Group plans to support several activities that should further the usefulness of the system, including:

- Creation of a periodic "AED Bulletin" for communicating new ideas and methods among users.
- Formation of subgroups to fund enhancements.
- Interaction with Softech, Inc., the organization responsible for maintenance, enhancement, and distribution of AED.

Chairman of the new group is Dr. David K. Jefferson of the Naval Weapons Laboratory, Dahlgren, Va.

Assisting Jefferson on the group's council, are Capt. David Peterson, USAF, Mark Eisner, MIT, Jakob Vlietstra, NV Philips', The Netherlands, and David C. Peterson, Boeing Corp.

Uaide Means COM

CHICAGO – The organizational meeting of Users of Automatic Information Display Equipment (Uaide) was held here recently, attended by representatives of Chicago-based firms using COM in their DP operations.

John Gill of United Air Lines was elected president of the Chicago chapter. Main speaker of the meeting was Doug Woodham of Dallas, Texas, Uaide international president.

The organization for the past 10 years has actively promoted the application and management of COM, a spokesman said.

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COMPUTERWORLD

societies/user groups

Indifference Plagues Sig, Is 'Urban Group' Remedy?

NEW YORK – A change in the nature of a multi-disciplined ACM group is in store, apparently because members do not feel the group has been serving a "useful, identifiable function within the ACM or the professional interests to which it is dedicated."

Noting a "lack of interest" by group members, the leaders of Sigpac (Special Interest group for urban data systems, planning, architecture; and civil engineering) are seeking corrective measures by going to the membership for new ideas on the possible change.

In an "open letter," Sigpac Chairman Gerald M. Sturman and Secretary-Treasurer Steven J. Fenves requested ideas before July 15, on the possible restructuring, so they could compile the ideas for an "open, knockdown drag-out discussion" at ACM '71 in Chicago.

The open letter stated there was an "obvious lack of interest" by membership in sustaining the Sigpac, "and the question arises whether the Sig should be continued in its present form, disbanded, or changed."

Interest has been sagging in two chief areas, according to the letter. First, Sigpac's "Bulletin" cannot recruit an editor, does not receive contributed material, and as a result, the letter related, "we have been unable to keep the 'Bulletin' alive."

Lack of contributed material points to the other noticeable deficiency, the failure of Sigpac to plan a session for ACM '71, the notice complained.

Sigspac is an applications-oriented group in an area that encompasses many professional societies. "It is clear that Sigspac is not meeting the competition," the letter conceded, adding the fault lies in both the group leadership and membership.

Electing to change rather than disband, Sturman and Fenves suggested there are two ways of accomplishing the change, once the difficulties of rechartering the Sig have been overcome.

The group first could become more closely aligned with the basic technical and professional concerns of ACM, and less applications-oriented.

No Applications

Such concerns might include problem-oriented languages, data structures, graphics, or telecommunications. Membership could thus leave applications to the professional societies.

Sigspac otherwise might choose to become involved with the one area common to the four professional interests currently embodied in its charter: urban problems.

"We could become Sigurb . . our theme would become that of the Urban Symposium - the application of computers to the problems of urban society," the letter proposes.

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- CLEVELAND, OHIO 44142, 5121 W. 161st Street, Phone: (216) 267-2725
- JERSEY CITY, N.J. 07305, Liberty Industrial Park, 43 Edward J. Hart Rd., Phone: (201) 434-0003 [N.J.] (212) 732-9494 [N.Y.]
- SKOKIE, ILL. 60076, 7620 Gross Point Road, Phone: (312) 965-7550
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- MONTEBELLO, CALIF. 90640, 1501 Beach Street, Phone: (213) 685-3069

RCA

Staff, Students Happy With Programmed Text

CENTEREACH, L.I. – Two junior high schools and one senior high school here have initiated a programmed instruction and individualized progress program for mathematics students resulting in a significant improvement in academic performance with corresponding reductions in professional staffing.

The Cater Project, (for Computer Assistance: Teaching, Evaluation and Recordkeeping), a computer-managed instruction (CMI)* program, involves Dawnwood and Selden Junior High and Centereach Senior High School in the Middle Country Central School District here.

The three schools use a series of programmed textbooks, that are part of the Temac Programmed Learning Materials series published by Encyclopedia Britannica Educational Corp. They contain all of the material common in junior and senior high school mathematics texts, as well as a series of corresponding examinations for each section.

Programmed texts are designed so that students advance at their own rate of speed. Students complete a section of study and request an examination of the material just studied.

During the 1970-71 school year, more than 2,500 students are enrolled in the Cater Project. The need for writing examinations was eliminated by the use of the programmed texts. The time teachers wasted correcting, computing and comparing student grades was eliminated by the use of a computer system and teacher aids that supervise examination sessions.

Stephen I. Tupper, supervisor of secondary education, pointed out that "the Cater Project will reduce costs for the school district because of the need for fewer professionals."

Education

All in the Family

ST. PAUL, Minn. – A 12-year-old junior high school student has attempted to improve upon sports prognostication with some assistance from a minicomputer that sits in the dining room of his home.

Actually, Tim Boraas and his brothers, Tom, 10, Ted, 9, and Todd, 7, use the electronic gadget for a variety of other purposes including as an aid for solving and verifying homework problems.

Their father, assistant director of the Division of Health Computer Sciences at the University of Minnesota, uses the $8,500 DEC Corp. PDP-8/L to develop sophisticated statistical programs for a larger PDP-12 computer, which the division recently purchased.

"Each week, Tim analyzed the Minnesota Vikings professional football team and their opponents based on individual, team and common opponent statistics," said the father.

"The computer also has helped Tim learn about square roots and their peculiarities and other serious problem-solving activities because the initial 'fun and games' novelty of the computer has worn off," he said.

"Tom is interested in mathematics and must work quite hard to get his school assignments completed, but the introduction of the computer has led to a remarkable improvement in his interest in mathematics. He can solve his homework problems in the usual fashion and then check his answers on the computer, enabling him to get immediate feedback and reinforcement of the material just studied."

N.Y. Assessors Get Training Aids

NEW YORK – The New York State Board of Equalization and Assessment has initiated a training program for some 1,000 tax assessors throughout the state to assist them in performing their job more effectively.

Under a contract from the state board, Computer Sciences Corp. is developing a self-instructional course in the use of two standard approaches to the appraisal of real property. The approaches are by income and by cost.

The project is being performed by CSC's education and training division, Computer Sciences Institute, at Silver Spring, Md.

CSC will design the course for use on an individual or group basis. It will consist of approximately eight hours of training in each of the two approaches to appraisal.

The new training program is intended to assist virtually all elected and appointed tax officials in the appraisal of real property at the municipal level.

Under the income approach, appraisers will learn to estimate risk as a percentage of value; estimate total operating costs; calculate net income, total capitalization rate and overall value; and to adjust overall value to obtain an appraisal value consistent with prudent investment.

The cost approach will provide instruction in estimating total replacement costs and in rating property, the exteriors of buildings and the neighborhood of a property. Appraisers will learn the use of criteria such as compatibility, quality and over- and underimprovement.

Under the contract, the Institute will develop the content, training materials and final tests for the self-instructional course.

Rice Programs Best

COLLEGE STATION, Texas – A team representing Rice University has won the Second Annual Texas Computer Programming Championships.

A University of Texas-Austin team finished second followed by Texas A&M and Southwest Texas State. Twenty teams from 14 Texas colleges and universities participated in the contest. The winners shared a $100 cash prize.

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MEMBERSHIP MANAGEMENT SYSTEM – 7 Programs

System provides all necessary file maintenance capabilities needed to maintain a membership list. Input edit, master file list (selective), accounts receivable, record select, management reports and mailing labels are provided with the system.

IBM 360, 32K, DOS, TOS, Reader, Printer, 4 Tape Drives – COBOL with some ALC Subroutines.

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SALES REPRESENTATIVE – Time Shared Services. $15,000

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Too Many Computers in the County?

CW Midwest Bureau

FLINT, Mich. – A Michigan deputy state treasurer claims that Genesee County may not be over-computerized, but says it certainly has too many computers.

James F. Marling, of the Bureau of Local Government Services, said a study by his department showed that Genesee County has a total of seven computers when four would be sufficient.

Genesee County has IBM 360s in the county offices, the drain commission, the city of Flint, Hurley Hospital, the Flint Board of Education, Genesee County Community College, and the Genesee County Intermediate School District.

Marling said that the $65,000 per year rental to IBM for the drain commission computer is not needed. His study shows, he said, that the drain commission uses the system to less than half of its capacity.

A recommendation has been made to the drain commission that it return the computer and use the county's system for water and sewer billings.

Firm to Update Customer Inventory

LOS ANGELES – A new wrinkle in customer service was introduced by Ponder & Best, independent photographic equipment marketers, at meetings held in 22 locations across the country. By taking advantage of its IBM 360/30 it will prepare, at no cost to dealers, monthly reports on how their inventory is proceeding and what products are producing the most profit.

"Using this information, the dealer can gear his purchases to the faster moving, more profitable products, minimize inventory on slower lines, and utilize promotions more effectively to balance inventories," explained Jay Katz, executive vice-president. The computer program takes 97 products.

Only requirement to receive the free service is an initial order of $25,000 worth of equipment.

Report on Hospital Costs Released

ANN ARBOR, Mich. – Why does it cost more to be in one hospital than in another?

A starting point for answers to this question is provided by the Study of Patient Charges (SPC) announced by the Commission on Professional and Hospital Activities (CPHA).

The new study is available as an option to the more than 1,400 U.S. and Canadian hospitals participating in the Professional Activity Study (PAS). PAS, a computerized medical record information system, is the largest program of CPHA, a nonprofit, nongovernmental medical research computer center dedicated to the improvement of hospital and medical care.

As in all CPHA activities involving hospital data, charge information supplied by hospitals taking part in SPC will be confidential and CPHA will not know the name of either the patient or of his attending physician.

Each hospital taking part in the Study of Patient Charges will submit to CPHA charge data on every patient discharged. This will be done by the hospital adding one figure, total allowable charges, to the case abstract of each patient's medical record routinely sent to CPHA as part of the hospital's participation in PAS.

CPHA computers will prepare quarterly reports for each hospital from the data that hospital submits. The reports will provide analyses of charges in relation to the care provided.

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May 26, 1971

It was Panasonic's first Joint and the firm entered the U.S. OEM market with a splash. (CW Photos)

Despite Attendance

Conference OEM Business Booms

By E. Drake Lundell Jr.
CW Computer Industry Editor

ATLANTIC CITY – Despite the well-publicized dropouts among some of the biggest names in the business, plenty of manufacturers were doing business at the Spring Joint Computer Conference here last week.

The attendance was lighter than in the past years, but most of the people seemed to have a buying influence, and one large manufacturer said that it was the best Joint in years considering the contacts made.

OEM exhibitors were down from the past, indicating both the tight economy and the rough competition in the business. This also reflects the Western orientation that seems to prevail in the OEM business with most of the memory houses sticking close to their own backyard in California.

Of the nine semiconductor memory houses that exhibited at the Fall Joint in Houston, only one was able to make the long haul to the cavernous convention hall here.

Big pushes on the OEM side of the business were made by Ampex, Panasonic and Cincinnati Milacron, with the last two being newcomers to joint conferences.

The booming areas of the industry were well represented, led by the manufacturers of core replacement memories and extended core systems to replace Large Core Store on the 360 line. The four firms in the field were there (Ampex, Fabritek, Data Recall and Cambridge Memories) and Standard Memories promised a unit soon.

Tape deck competition has gotten hotter, if anything, judging by the turnout at the conclave, with a great deal of competition in the cassette area, which received a hard blow when the Philips representative in the U.S. (Digitronics) opted for a cartridge unit over the Philips-type device.

It appears that the gamble many of the firms took by exhibiting paid off in terms of hard cash – where it counts most – despite the dismal predictions of the industry's economy and the relatively sparse attendance – at least sparse by the standards of past years.

Wall Signals Theme of Responsibility: DP for All Markets, Local Ownership

By Edward J. Bride
CW Staff Writer

ATLANTIC CITY – "If you dominate, you have the greater responsibilities," a dominant force in Britain's computer industry told his U.S. counterparts.

Sir John Wall, chairman of the board of International Computers Ltd., said the U.S. computer industry has a two-pronged responsibility to consumers and world markets, if the industry is to survive profitably.

First, computer technology must be made available to all world markets, not just the free world, and then local ownership of foreign branches may have to be offered.

"You must offer the whole wide spectrum of technology," Wall cautioned his audience, "so that, if for political reasons a breach occurs, countries are not cut off."

Regarding the local ownership suggestion, Wall used his own company as an example, and asked, "Why shouldn't an Australian be able to buy shares in ICL Australia?"

'Ethical Model'

Wall called on computer societies to strengthen the industry by creating "an ethical model" for the future. Every other industry has corrected mistakes after an angry public recognized them, he noted.

He said the computer industry could become "the first industry to protect itself against 'clobbering' – the one that builds its own "anticlobber' model!"

Such ethics would be used to enforce professional standards on DP society members, thereby assuring a "sense of status" for those societies ("to belong is important, and to be dismissed is a disgrace," he commented).

Ethics must also be applied to salesmen, Wall decried, but this can come about only through general concern by industry leaders.

Industry Development

Encourage DP development in other countries, Wall stated, rather than making the British "mistake" of tying world markets into their system.

As far as America's foreign markets are concerned, the keynote speaker suggested "it is their information that is being handled, not American information." This data handling forms an integral part of the autonomy of these countries, he continued.

"What any self-respecting country should expect from the leading country in the world's technological empire is technological independence."

Wall was also critical of the U.S. restriction on trade with Russia and Eastern Europe, a "virtual veto" over sale of computers to those markets because of their "strategic" value.

The U.S. government is inhibiting ICL's business with the USSR and Eastern Europe, he claimed, in reference to trade restrictions which prohibit overseas sales of certain components which may in turn be included in computer systems sold to Soviet satellites.

Technology should not be used as an instrument of foreign policy, he opined, because the purpose of technology is to "increase the wealth and happiness of mankind."

World peace through world trade is Wall's credo, and technology should help preserve peace by improving the standard of living for all people in all countries.

Wall's speech, aimed at both the user community and the industry in general, was the first "joint" keynote delivery by a foreign figure, and his message of the varying facets of responsibility, the conference's theme, was well-received.

CMI's Memory Boasts 1 usec Block Access Time

By Michael Merritt
CW Staff Writer

ATLANTIC CITY – Using techniques similar to those of the Bell Labs bubble memory, Cambridge Memories Inc. (CMI) has designed a solid-state disk or drum replacement.

CMI's Block-oriented Random Access Memory (Boram) boasts 1 usec block access time for blocks of 2K to 4K words, which means an average word access time of 1.75 msec.

According to Dr. Robert Spain, CMI's director of research, the memory will cost from .25 cent/bit to .1 cent/bit. The lower price is for large memories or quantity orders.

The first models will be 2 to 10 Mbits. Since the system is modular, size changes are relatively simple.

Spain said the first marketing direction for CMI with the Boram will be disk, drum and cassette replacement. He added that once the concept becomes accepted, designers may turn to it for large core memory and shift registers.

CMI showed an engineering prototype of the unit here, and predicted that it would have a pilot prodnction model ready for the Fall Joint.

The memory is based on domain tip technology, manipulating a magnetically poiarized area in a thin film of a ferromagnetic substance.

The Bell Telephone Laboratories recently announced it was experimenting with a similar technique, using magnetic domains in garnets and other weakly ferromagnetic substances.

The CMI memory uses a less exotic film, an iron-nickel-cobalt alloy. The film is deposited on a plain glass substrate.

While the manufacture of the Boram units is similar to that of common integrated circuits, only two masks are needed. An IC may need up to a dozen.

This increases the yield of usable chips greatly, Spain said that CMI's yields were in the range of 75% to 80%.

Spain said also that the Bell Lab's experiments produce chips in which the magnetized areas can be moved very quickly – much more quickly than in the CMI unit – but they are difficult to produce.

An advantage of this type of memory is that it can be driven at any speed up to its maximum.

AT&T says the bubble memory is years away, but here Robert Spain of Cambridge Memories displays his firm's memory (Boram) to Univac mass memory engineers.

Change to Accompany Mini Area Growth, Study Says

ATLANTIC CITY – The minicomputer market will more than double in size within the next five years, but will undergo rapid changes that will completely change its nature during the same timespan, International Data Corp. reported to sponsors of its Dedicated Application Computer Market here last week.

According to the study, there were 1,700 minis shipped in 1967 and 9,000 last year. The market will jump to a level of 22,000 shipments by 1975, it projected.

At the same time, IDC said that the market is extremely fragmented and existing customers will face serious challenges in trying to juggle the demands of both end users and OEMs.

The market not only faces external impacts from hardware and software advances, but it also "must face an internal restructuring imposed by IBM and its System/7", according to IDC Vice-President Walter Misdom.

The major potential for existing manufacturers lies with developing the end-user marketplace, which, according to IDC, provides opportunities for peripheral upgrading, business stability and improved profit margins. It could be dangerous for minicomputer makers to rely too heavily on the OEM market, the study warns.

The OEM market accounted for around 50% of the sales of minis in 1970, the study says, and there will continue to be a strong demand for OEM equipment in the future. But IDC said this demand will require manufacturers to become component suppliers, at reduced levels of profitability and with growing competition from former customers who begin to make the equipment themselves.

No Lens Systems

ROM Memory Uses Fiber Optics

ATLANTIC CITY – The Optical ROM Memory System, the Model 401-22 from Quadri Corp., uses fiber optics rather than the lens systems of conventional optical memories. The unit has been specifically designed for applications requiring frequent program changes.

The Model 401-22 offers storage capacities of up to 50K bit/system on Quadri's standard 11 in. by 13 in. printed circuit board. It is TTL-compatible and can be dot OR'd. Standard access time is 150 to 200 nsec to meet the requirement of current field programmable read/only memories. For applications requiring faster speeds plus field alterability, access times of 50 to 100 nsec will be available, the firm claimed.

The system operation begins with the address input activating word drive transistors. The word drive transistors select one light emitting diode (LED). The LED illuminates a specific line of holes via the Radiation Distribution Plate to the photomask. The mask either blocks or passes the radiation (according to the predetermined program) and directs the radiation to the light detecting diodes (LDD). Signals from the LDD's are amplified and transmited to the output terminals. Quadri Corp. is at 2950 West Fairmont, Phoenix, Ariz., 85017.

Dicom Has 2 Transports

ATLANTIC CITY – The Dicom Model 440 Cassette Vacuum Transport (440 CVT) is a multiple-speed OEM cassette tape drive designed to provide bidirectional incremental-by-character write/read, bidirectional block-synchronous write/read, and high-speed bidirectional search relative to data on tape.

Using the proposed Ansi/Ecma standard for information interchange via cassettes, the maximum data transfer rate is 5,000 8-bit byte/sec; utilizing dual tracks, the maximum data transfer rate is 10,000 byte/sec. The 440 CVT uses the proposed Ansi/Ecma standard cassette, but can be implemented to utilize any bidirectional media. Volume OEM production deliveries of the Dicom Model 440 Cassette Vacuum Transport are scheduled for the fourth quarter of 1971; the 440 CVT is priced at $400 in OEM quantities.

The Dicom Model 171 Cassette Transport Module (171 CTM) provides bidirectional block-synchronous write/read up to 15 in./sec, bidirectional high-speed search and fast rewind.

Using the proposed Ansi/Ecma standard for information interchange via cassettes, the maximum data transfer rate is 1,508-bit byte/sec. Data reliability is less than two errors in 2 by 10^8 bits. The 171 CTM is interface-compatible with the Dicom Model 440 CVT.

Volume OEM production deliveries of the Dicom Model 171 Cassette Transport Module are scheduled for the fourth quarter of 1971; the 171 CTM is priced at $150 in OEM quantities by the firm at 715 N. Pastoria Ave., Sunnyvale, Calif., 94086.

Tycom Modem Costs $69

ATLANTIC CITY – The Tycom 900 Data Set, a Bell System 103 – compatible, originate-only, full duplex data set with a -45 dbm receive sensitivity is available from Terminal Equipment Corp. The Tycom 900 is available as a printed circuit board (PCB) modem for Data Access Arrangement (DAA) users and as a complete acoustic coupler.

The PCB version sells for $69 compared with the Bell System's lowest priced 300 baud (113A) Dataphone, whose normal rent is $120/yr. However, the Tycom 900 characteristics are functionally equivalent to the Bell System 103A2, 103E and 103F data sets, which rent for $19 to $33/mo (excluding DAA tariff). The basic PCB modem incorporates as standard features both EIA RS 232C and DTL/TTL interfaces.

The acoustic coupler version sells for $99.50, including housing, power supply and carrier indicator lamp.

The firm is at 750 Hamburg Tpke., Pompton Lakes, N.J., 07442.

Conrac I/O Terminal Shown

ATLANTIC CITY – A series of modules comprising an alphanumeric CRT input/output terminal system called Contractor has been introduced by Conrac Corp. The line uses basic building blocks consisting of a display, keyboard, unit controller, serial distributor, distributor expander, dedicated printer buffer and printer multiplexer. The unit controller is housed in the display in stand-alone usage and externally in cluster usage.

The terminal has the full gambit of edit options including character and line insert and delete, format control, scroll and blinking. The OEM customer can select from these and a variety of line and char/line configurations optionally.

The terminal will handle communication environments up to 9,600 baud synchronously and asynchronously in half-duplex operation and a high-speed parallel connection is also available up to 500K 8-bit word/sec. The display uses a dot matrix 5 by 7 character presentation and has solid-state componentry throughout.

The firm is at 600 N. Ramsdale Ave., Covina, Calif., 91722.

Auricord Has Cassette Deck

ATLANTIC CITY – Auricord Division of Scovill announced the availability of a digital cassette deck, the CAS-20. The CAS-20, according to Leonard Rosenblatt, Auricord's manager, is a lower-cost version of the CAS-10 digital cassette deck.

Features of the unit include single direction read/write from 1.5 to 15 in./sec with dual direction search from 40 to 400 in./sec. All speeds are electrically adjustable. The CAS-20 has three 10,000 hr rated life brushless dc motors and cassette in place and file-protect sensors. A high inertia flywheel system is used for damping of tape speed variations. The new digital cassette deck has optical EOT/BOT sensing. Start time is less than 40 msec and stop time is less than 20 msec.

Sample price as $276 and production quantity price is $96. Auricord is at 35-41 29th St., Long Island, N.Y., 11106.

Remex Pushes Cassettes

ATLANTIC CITY – Remex has expanded its line to include a digital magnetic tape system for use with "Philips"-type cassettes. The Remex Model RCS0500 complete system and companion RCM0500 mechanism are two members of what will be a series of products of this type, according to the firm.

Some of the features of the RCS0500 include: 500 char/sec transfer rate; data storage up to 250,000 characters; unidirectional reading standard, bidirectional reading optional; 8-bit parallel data I/O or a serial pair of data streams; internal error detection and correction; full cassette rewind in less than 40 seconds; and error rate less than 1 in 10^7 characters.

Some models in the RCS0500 series are competitively priced in OEM quantities at less than $1,000 each I/O channel.

Remex also announced expansion of its line of tape perforators. The new Remex Model RPR1075, a lower-cost version of the RPS1075, provides all of the features of the RPS1075 except for take-up spooling.

Some of the features included in this unit are: operation at 75 char/sec continuously; back space capabilities (standard); rack-mounted configurtion with chassis slides provided; and capability to perforate either paper or mylar tapes of 5-, 6-, 7- and 8-track widths in roll form. Typesetter versions also available on request.

The RPR1075 is priced at $1,515 each in one to nine quantities. Quantity discounts are available. Deliveries can be made in eight weeks after receipt of order from the company at 1733 Alton St., Santa Ana, Calif., 92705.

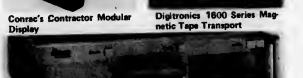
New OEM Products

Product Spotlight

Conrac's Contractor Modular Display

Digitronics 1600 Series Magnetic Tape Transport

Remex Cassette Tape Unit



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Digitronics, Supporter of Philips-Type Cassette Standard, to Market Novar Unit

By a CW Staff Writer

ATLANTIC CITY – One of the strongest supporters of making the Philips-type cassette a standard for digital cassettes left the fold in a surprise move here last week.

Digitronics, which had represented the Philips position in American standard activities, revealed it would manufacture and market a tape cartridge unit that was developed and is produced by Novar Corp., an operating unit of GTE Information Systems Inc.

Under the agreement, Digitronics will market the system worldwide to OEM customers and will use it in its own equipment, most notably the Data Verter and Dial-O-Verter product lines. Novar will continue to use the units in its own products.

William C. Bennett, president of Novar, said that the Digitronics defection represented a breaking of the trend toward standardization of the Philips-type units.

Own Standards

He said that Novar would press for standardization on its cartridge unit now that the deal with Digitronics was completed, since a product must be available for license to other manufacturers before it can be considered for standardization.

He indicated that over a period of five years, Digitronics would probably supply over 100,000 of the tape decks for the systems and over a million cartridges.

The cartridge fits into the lower end of the tape and tape deck market, Bennett said. This section of the market should reach an annual volume of around 500,000 units by 1975 for a total value of around $200 million, based on the current price of around $400 for a tape deck.

Source Data Equipment

Source data automation systems will account for the bulk of this market, he added, predicting that 75% to 80% of the market would be in source data automation equipment.

Bennett predicted that the cartridge would become a de facto standard for cartridges within six months and should become a formal standard or subset of a standard within three or four years.

The move into this area on the part of Digitronics represents an expansion out of the paper tape field. The firm reportedly feels that magnetic tape will replace paper tape in a number of areas in the next few years and wants to get a base in the field.

Cincinnati Milacron Sells Epitaxial Material for Chips

ATLANTIC CITY – Cincinnati Milacron has begun to market its epitaxial wafer capability to other firms in the field, it was learned here last week.

Epitaxial material, the building blocks for integrated circuits, will account for about $500,000 in sales this year, according to William Glosser.

The firm is shooting for a 20% share of the total market for the material by 1975, he said, predicting that the market would be valued at between $30 million and $40 million at that time.

Most mini manufacturers are running into a bind as the price of chips comes down, making their contribution to the value of the machines less and less – for the hardware portion. To fight the problem and keep customers from manufacturing the units themselves, many are building greater software capability and becoming more application oriented.

The move by Cincinnati is in the opposite direction – it is selling the basic materials that go into making the chips for the systems. "It's a reasonable way to stay in the computer business," Glosser said.

Sights at SJCC

Century Data's 230 gives possible view of IBM 3330.

ISS shows disk and the latest fashion trend. (CW Photos)

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Ampex Pushes Memory Unit, Tape Drive

ATLANTIC CITY – Ampex made the largest OEM product push of the Spring Joint Computer Conference last week with the largest total booth space on the floor and with three new OEM products added to its line.

The new products include a new core memory unit for OEM applications, a tape drive with automatic tape threading and vacuum chambers for tape protection and a new electronics package for its series of tape drives.

Eugene E. Prince, vice-president/general manager of the Ampex Computer Products Division, said the Ampex Model 3600 Series core memory uses new Ampex high-density core packaging techniques to accommodate more than 1,000 bits of data in 1 cu in. of space. Presently available core memories store only about 250 bit/cu in., he said.

The 3600 is priced at less than 2 cent/bit in quantity and is available 90 days after receipt of order. It offers cycle times of 650 and 900 nsec in sizes ranging from 16K to 128K words of 36 bits each.

The compact Ampex memory family uses 18-mil cores in 3-wire, 3-D configuration. The high-density stacks within the memories consist of cores arranged in a herring-bone pattern. The 16K word model, with 589,824 bits of storage, measures 9.75 in. high by 21 in. deep by 2.8 in. wide.

The Ampex Model TMA tape drive fits into a standard 19-in.-wide rack mount, Prince said.

The complete TMA system with NRZI electronics and automatic threading is priced under $5,000 in quantities and is available 60 days after receipt of order. A lower-cost version with manual straight-line threading is also available.

Tape speeds of the TMA range from 45 to 112.5 in./sec. The new single-capstan drive uses twin vacuum chambers to buffer and protect tape.

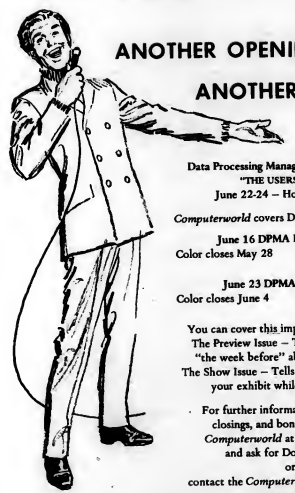
Control circuitry of the TMA includes diode and triac switching. Transistor-transistor logic and modular integrated circuitry provide ease of maintenance. The 9-track model has packing densities of 1,600 char/in. for phase encoding read and write and 800 char/in. for NRZI. The 7-track model has densities of 200, 556 or 800 char/in. for NRZI read and write.

The new DE-700 tape electronics are available with newly purchased Models TMA, TM-9, TM-7, TMZ and TMX tape drives, creating full tape memory systems. Basic, read-only NRZI DE-700 electronics are priced under $500 in quantities. Other DE-700 packsges, costing up to $5,000, include phase encoded/NRZI formats in a shared system which controls eight tape drives.

Use of the Ampex electronics permits conversion of NRZI tape memories to handle phase-encoded format, for greater packing density and broader error-correcting ability.

Using DE-700 electronics in phase-encoded format, each of the nine tape tracks has a phase-lock oscillator.

DPMADPMADPMADPMA



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ANOTHER SHOW – COVERED

Orders and Installations

Vulcan Materials Co., Birmingham, Ala., has ordered a Burroughs B2500, valued at more than $535,000, for its Chemicals Division in Wichita, Kan.

A Honeywell Model 3200 computer system has been installed by Prices Tailors Ltd. of Leeds, England, to serve a credit account system for its 640 retail stores.

Three Univac 1108 computers and three Univac 418-111 systems have been installed at Western Union's new information services computer system center in Middletown, Va.

A Burroughs B3500, valued at more than $780,000, has been installed at the Citizens National Bank of Englewood, N.J.

Liberty National Life Insurance Co. of Birmingham, Ala., has installed an IBM 370/155.

Wisconsin Gas Co. and Michigan Gas Co. have ordered a Star System for Telephone Administrative Response (Star) from the Control Systems Division of Applied Data Research, Inc.

Interdata, Oceanport, N.J., has received an order for four of its Model 5 computers from the Ford Motor Co.'s Rawsonville plant in Michigan.

Dairyland Insurance Co., Madison, Wis., is using Honeywell's KeyNet data-entry communications terminals.

Four Winds Forwarding, Inc., San Diego, Calif., has installed an IBM System 3/6 to track shipping containers.

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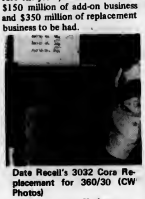
360 Core Replacement Manufacturers Focus on Potential $500 Million Market

By Michael Merritt
CW Staff Writer

ATLANTIC CITY – Following the success of Data Recall in placing its core memories in the computers of almost one hundred 360 users, the core replacement manufacturers were out in force at the Spring Joint.

All of them agreed that there was a pie of $300 million to $500 million to split between them.

Richard Egan, marketing manager for Cambridge Memories, which began shipping its 360 core replacements the week before the joint, estimated there is $150 million of add-on business and $350 million of replacement business to be had.



Data Recall's 3032 Core Replacement for 360/30 (CW Photos)

Ampex's Thom Harleman, national sales manager for end user products, said his company's studies showed a potential 360 mainframe add-on market of about $300 million.

Fabritek's Richard A. Baker estimated a market for 8,000 32K-byte units for 360/30s alone – about $300 million to $350 million.

The core memory replacement market exists by underselling IBM. Price advantage over the giant's units runs from 10% to 50%, depending on the size of memory and shift differential use. The independents also offer more convenient leases.

In general, core can be had from the independents at 20% less than IBM prices.

While the other independents are planning such moves, Data Recall – marketed by the Computer Investors Group – has also

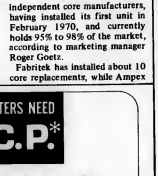
Cambridge Memories 131K-byte 360 Core Add-On Memory

begun to offer larger memories than IBM will sell.

Currently Data Recall will take orders for memories up to 131K bytes for 30s, 453K bytes for 40s, and 1M byte for 50s.

Deliveries for most of the large units are scheduled for July, but the company has already installed a 393K-byte memory on one 40.

Data Recall is the leader of the



Ampex Memory for 360/30

Independent core manufacturers, having installed its first unit in February 1970, and currently holds 95% to 98% of the market, according to marketing manager Roger Goetz.

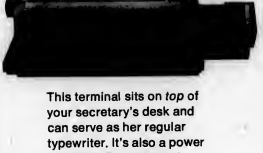
Fabritek has installed about 10 core replacements, while Ampex has delivered what Harleman called "a small number – less than 10." And CMI has just begun deliveries.

The marketing men at the Joint agreed the products were creating great user interest – which was verified by stacks of user information requests.

Fabritek's Core Memory Replacement for 360/50

Maintenance is a user worry, and here Ampex has a competitive edge. It performs all its own manufacturing and support. Some of its competitors even use Ampex cores to build replacement memories.

CMI's maintenance is done by Comms Corp.; Honeywell maintains the Data Recall units; and Sorbus does the maintenance for Fabritek.



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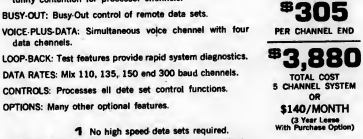

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First Quarter Analysis

Industry Still Feels Recession, Tight Budgets

By Michael Merritt
CW Staff Writer

Along with the crocuses, first quarter earnings reports have been popping up, and for computer makers it seems as though it's a cold, wet spring.

The earnings reports show that the computer industry is still lagging in the doldrum of recession and tight capital budgets. Three of the eight major manufacturers listed showed decreased revenues, while five showed decreased earnings.

Control Data, whose computer departments operated at a loss last year, managed to return to profitability, but only through accounting changes and special credits [CW, May 19].

Each of the companies has its own special story, of course. Honeywell, which saw a 7% drop in revenues and a 50% drop in earnings, is still in the throes of the merger with GE's computer operations. The company is also heavily involved in thermostats and the like, and, due to a sagging building market, sales in that area have been weak.

RCA, which had a 7% drop in total earnings despite an 8.6% rise in sales, is building its computer division, not making money off it. And RCA was bothered as well by limp TV sales and so on.

DEC, almost totally a computer company, had trouble even keeping net equal to 1970's and profit fell off a whopping 43%. The can be attributed to the disastrous economy, heightened competition, and a problem the minicomputer industry is going to be battling for a long time to come – sharply falling unit prices.

The only two consistent winners in the first quarter were Burroughs and – to no one's surprise – IBM.

In its quiet way, Burroughs managed to boost revenues 10% and total earnings 13%. Per share earnings were up 8%. IBM revenues grew 12%, total earnings 9% and per share earnings 8%.

But hold on, this is the computer industry, wonder of the second half of the twentieth century, destined to become bigger than automobiles. Revenues up 10%? Earnings up 9%? That isn't in the script.

The industry discovered a year ago that it was not recession-proof, that beautiful phrase of stock touts. The industry is now discovering that it is like any other machine tool supplier, and very vulnerable to tight capital situations.

IBM's rental flywheel is keeping it going well, for example, but for a company with IBM's assets – financial, human, technical, managerial – to fall so far behind its 15% growth target is a very revealing symptom, more revealing than the difficulties of a CDC or an NCR.

The computer industry was indeed a leader into the recession, and is being a follower coming out. Computer makers are discovering that their market is no longer virgin, that much of American industry is already computerized.

To find new markets IBM has had to turn to the small user, the System/3, low-ticket man, the client who might move up to 370 class in 10 years. This is not IBM's preferred style of business; even at the System/3's price, there's an awful lot of work for a little profit.

Though there is a continuing – but slower – growth of the customer base, the manufacturers have carved large chunks of it into spheres of influence. More and more, manufacturers are finding themselves defending their spheres from competitors, rather than creating new customers.

This invariably reduces profit margins and withdraws efforts from finding virgin customers. The competition may help the users, but it is no great boon to the manufacturers.

Financial

Acquisitions

Dashew Business Machines, Santa Monica, Calif., has agreed in principle to acquire American Computer and Communications Co., Torrance, Calif. for an undisclosed amount of stock.

ACC produces magnetic encoding and reading devices; Dashew manufactures credit cards.

United Computing Systems, Inc., Kansas City, Mo., has acquired the time-sharing services, certain software packages and facilities of Academy Computing. UCS is a national time-sharing and computer services organization, and a subsidiary of United Utilities, Inc.

Sci-Tek, Inc., Wilmington, Delaware, has acquired Univac's Information System Division Metropolitan New York Service Bureau from Sperry Rand Corp.

The acquisition, valued in excess of $5 million, includes a Univac 1108 installation and service bureau in Mineola, L.I.

EDP Technology, Washington, D.C., has agreed to acquire the Electronics Futures Inc. Division from KMS Industries Inc. in exchange for 80% of EDP's common stock. The agreement is subject to EDP shareholder approval of an increase in the number of authorized shares of EDP common.

Sperry Rand Earnings, Sales Fall

NEW YORK – Sperry Rand's earnings for the fiscal year ended March 31 dropped from $81 million, or $2.57 a share, to $72.3 million, or $2.11 a share. Sales slipped slightly from $1.76 billion in 1970 to 1.74 billion in 1971.

Fourth quarter earnings fell to $20.7 million, or 60 cents a share, from $24.3 million, or 71 cents a share. Sales in the fourth quarter also declined, from $509 million to $468 million.

Business equipment and DP operations, according to Sperry President J. Frank Forster, showed increased earnings and revenues for the year, and supplied almost half of the company's revenues. Earnings from computers and business machines rose over 20% from 1970, he said.

Forster attributed the corporate showing to the "effect of cost inflation in the face of a slowdown in the economy."

Orders for Univac computers "remained at a level generally consistent with conditions in the computer industry," Forster noted, but added that the growth of the industry was less in 1971 than in 1970, both in domestic and international markets.

While the machine tools sales were off because of strikes at Sperry's Vickers Division and a weak economy, Forster noted that sales of agricultural equipment were firm in the U.S.

Because of reduced government aerospace and defense spending, and reduced commercial aircraft shipments, orders for Sperry's aerospace and marine guidance and control systems were also off, Forster said.

Nickels & Dimes

The public offering of one million shares of Electronic Data Systems – including 900,000 from founder Ross Perot – sold out completely at $63.50. The other 100,000 shares came from duPont Glore Forgan, the Wall Street brokerage house Perot is saving from bankruptcy. Perot's share in the proceeds works out to over $57 million.

$$$

If you ever wonder how IBM does it, a glance at *Fortune*'s 500 figures shows the Colossus has a return of 13.6% on sales – in other words, of very dollar of IBM sales, 13.6 cents is pure, unadulterated, bottom line profit. Last year, Honeywell, for example, made 3.2%; NCR, 2.1%; Sperry Rand 4.6%; and Burroughs 7.5%. The average for the 500 industrials was 4.7%. That's how IBM does it.

$$$

Randolph Computer will be giving Scan-Optics up to $18 million in lease financing over a three-year period. The two signed a letter of intent leading to an agreement by which Randolph would purchase Scan-Optics from based on lease contracts between Scan-Optics and its customers. Randolph will have the right to buy 80,000 Scan-Optics shares at $16 as part of the agreement.

$$$

Diebold Computer Leasing has retired its Class B-2 stock. The only outstanding equity left is Class A common, of which there are 3.2 million shares. The retirement changes Diebold's primary per-share earnings for the year ended Dec. 31, 1970, to 60 cents, and for the first quarter of 1971 to 72 cents. They had been previously reported as 48 cents and 18 cents, respectively.

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TRADE*QUOTES

Computerworld Stock Trading Summary

All statistics compiled, computed and formatted by TRADE★QUOTES, INC. Cambridge, Mass. 02138

CLOSING PRICES THURSDAY, MAY 20, 1971

EXCH		1971 RANGE (1)	CLOSE MAY 20 1971	WEEK NET CHNGE	WEEK PCT CHNGE
	SOFTWARE & EDP SERVICES				
O	ADVANCED COMP TECH	2- 4	1 1/2	0	0.0
A	APPLIED DATA RES.	5- 13	7 7/8	+ 1/8	+1.6
O	APPLIED LOGIC	1- 3	1 3/8	- 1/8	-8.3
O	ARIS	1- 2	1 1/8	0	0.0
N	AUTOMATIC DATA PROC	44- 60	56 3/4	-1 1/8	-1.9
O	AUTO SCIENCES	5- 8	5 3/8	- 3/4	-12.2
O	BOOTHE DATA SYS	1- 2	1 3/4	+ 3/8	+27.2
O	BRANDON APPLIED SYS	1- 1	3/4	0	0.0
O	COMPUTER AGE INDUS.	1- 2	5/8	0	0.0
O	COMPUTER ENVIRON	1- 2	1	0	0.0
O	COMPUTER INDUS.	4- 5	5	0	0.0
O	COMPUTER NETWORK	3- 10	8 1/4	- 1/4	-2.8
O	COMPUTER PROPERTY	8- 11	8	-1	-11.1
N	COMPUTER SCIENCES	9- 17	14 3/4	-1 1/2	-9.2
O	COMPUTER TASK GROUP	1- 3	2 1/2	+ 3/4	+42.8
O	COMPUTER USAGE	5- 16	9 1/2	- 1/4	-2.5
O	COMP AUTOMOT REPORTS	6- 13	11 1/8	- 3/8	-3.2
A	COMPUTING & SOFTWARE	27- 45	36 3/8	+ 1/4	+0.6
O	COMRESS	2- 4	3 1/4	- 5/8	-16.1
O	COMSHARE	4- 8	6 3/8	- 3/8	-5.5
O	CONSOL. ANAL. CENT.	1- 2	1 7/8	- 1/8	-6.2
O	DATA AUTOMATION	1- 4	2 1/2	0	0.0
O	DATA PACKAGING	7- 10	7 7/8	- 1/4	-3.0
O	DATAMATION SERVICE	1- 3	1 1/8	0	0.0
L	DATATAB	4- 10	9 3/8	- 3/8	-3.7
O	DIGITEK	1- 3	2 3/8	0	0.0
O	EDP RESOURCES	7- 18	13 1/2	- 1/2	-3.5
A	ELECT COMP PROG	3- 7	4 1/2	- 1/4	-5.2
N	ELECTRONIC DATA SYS.	58- 85	60	-2 1/4	-3.6
O	INFORMATICS	7- 15	12 5/8	-1 1/8	-8.1
A	ITEL	15- 23	17	- 3/8	-2.1
O	KEANE ASSOCIATES	8- 14	6 1/2	- 7/8	-11.8
O	KEYDATA CORP	10- 14	10 3/4	- 1/2	-4.4
A	MANAGEMENT DATA	8- 11	10 3/8	- 1/2	-4.5
O	NATIONAL CSS INC	7- 14	11 1/4	-1 1/4	-10.0
O	NAT COMP ANALYSTS	1- 4	2 1/2	- 1/4	-8.0
O	NAT.COMP. SERV.	2- 3	3 1/2	- 1/8	-3.4
N	PLANNING RESEARCH	16- 28	19 5/8	+ 3/8	+1.8
O	PROGRAMMING METHODS	18- 29	22 1/2	0	0.0
O	PROGRAMMING & SYS	2- 4	2 3/4	+ 1/4	+10.0
L	PROGRAMMING SCIENCES	1- 3	1/2	0	0.0
O	SCIENTIFIC RESOURCES	1- 2	1 1/8	+ 3/8	+50.0
O	SOFTWARE SYSTEMS	1- 2	1 3/8	0	0.0
O	TBS COMPUTER CENTERS	5- 9	5 3/8	- 1/8	-2.2
O	TOLLEY INTL CORP	3- 8	6	- 5/8	-9.4
O	UNITED DATA CENTER	2- 8	4 3/8	- 1/8	-2.7
N	UNIVERSITY COMPUTING	21- 33	33 1/4	- 1/8	-0.3
A	URS SYSTEMS	7- 11	7 1/4	- 1/8	-1.8
O	U.S. TIME SHARING	1- 3	2	- 1/8	-5.8
	PERIPHERALS & SUBSYSTEMS				
N	ADDRESSOGRAPH-MULT	24- 48	47 1/2	+5 3/4	+13.7
O	ALPHANUMERIC	3- 6	3 3/4	0	0.0
N	AMPEX CORP	17- 25	18 1/4	-2 1/4	-10.8
O	ASTRODATA	1- 2	1 5/8	0	0.0
O	ATLANTIC TECHNOLOGY	3- 8	8 1/4	- 1/8	-1.9
A	BOLT,BERANEK & NEW	6- 8	7 3/8	+ 3/8	+5.3
N	BUNKER-RAMO	10- 17	14	-1 1/8	-7.4
A	CALCOMP	23- 33	28 3/8	+ 1/4	+0.8
O	COGNITRONICS	5- 8	6 5/8	+1 1/4	+23.2
O	COLORADO INSTRUMENTS	4- 8	4 1/8	- 1/8	-2.9
O	COMPUTER COMMUN.	6- 19	11 3/8	- 3/4	-6.1
A	COMPUTER EQUIPMENT	4- 7	8 1/8	- 1/8	-2.0
A	COMPUTEST	13- 20	12 3/4	-1 5/8	-11.3
O	CONSOL COMPUTER LTD.	8- 11	10 1/4	- 3/4	-6.8
A	DATA PRODUCTS CORP	6- 10	7 1/2	- 1/4	-3.2
O	DATA TECHNOLOGY	3- 9	7 1/2	+ 5/8	+9.0
O	DIGITRONICS	4- 8	5 1/8	0	0.0
N	ELECTRONIC M & M	8- 18	16 1/8	- 1/8	-0.7
O	FABRI-TEK	2- 4	3 3/4	- 1/8	-3.2
O	FARRINGTON MFG	1- 3	1 1/4	0	0.0
O	FOTO-MEM INC	1- 6	1 1/4	- 7/8	-41.1
O	INFOREX INC	31- 48	37 3/4	-1 3/4	-4.4
O	INFORMATION DISPLAYS	5- 8	6	- 1/4	-4.0
O	MANAGEMENT ASSIST	1- 2	7/8	0	0.0
A	MARSHALL INDUSTRIES	18- 27	20 3/4	-2 1/8	-9.2
A	MILGO ELECTRONICS	18- 26	18	- 3/8	-1.8
N	MOHAWK DATA SCI	23- 47	40 1/4	-2 1/4	-5.2
O	ON LINE SYSTEMS INC	7- 15	15	0	0.0
O	OPTICAL SCANNING	13- 15	13 1/4	-1 1/2	-10.1
O	PHOTON	7- 12	9 1/8	- 1/8	-1.3
O	PHOTO-MAGNETIC SYS.	1- 5	4	- 1/2	-11.1
A	POTTER INSTRUMENT	17- 25	20 1/8	- 7/8	-4.1
O	PRECISION INST.	7- 14	9 1/2	0	0.0
O	RECOGNITION EQUIP	14- 26	21 1/8	-1	-4.5
O	REDCOR CORP.	5- 9	6 7/8	- 1/8	-1.7
N	SANDERS ASSOCIATES	13- 22	20	- 3/8	-1.8
O	SCAN DATA	6- 11	7 3/4	+1	+14.8
O	TALLY CORP.	11- 18	11	- 3/4	-6.3
N	TELEX	15- 22	18 1/4	-1 1/4	-6.4
O	VIATRON	1- 4	7/8	0	0.0
	SUPPLIES & ACCESSORIES				
N	ADAMS-MILLIS CORP	14- 19	14 1/4	-1 1/2	-9.5
O	BALTIMORE BUS FORMS	8- 10	8 1/2	- 1/4	-2.8
A	BARRY WRIGHT	8- 13	9 3/4	- 1/8	-1.2
A	DATA DOCUMENTS	18- 29	25	+ 3/4	+3.0
O	DUPLEX PRODUCTS INC	8- 10	8 1/4	- 1/4	-2.9
N	ENNIS BUS. FORMS	10- 13	10 1/2	- 3/8	-3.4
O	GRAHAM MAGNETICS	9- 33	23 1/2	-1 3/4	-6.4
O	GRAPHIC CONTROLS	6- 13	12 1/4	+1	+8.8
N	MEMOREX	54- 78	56	- 1/2	-0.8
N	3M COMPANY	96-117	114 3/8	+1 1/8	+0.8
O	MOORE BUS. FORMS	37- 42	38	+ 5/8	+1.6
N	NASHUA CORP	28- 46	44 7/8	+ 3/8	+0.8
O	REYNOLDS & REYNOLD	37- 52	47 1/2	+ 1/2	+1.0
O	STANDARD REGISTER	19- 23	21 7/8	+1 1/8	+5.4
O	TAB PRODUCTS CO	8- 15	14 1/8	- 1/4	-1.7
N	UARCO	25- 33	30 3/4	-1	-3.1
A	WABASH MAGNETICS	8- 10	8 1/4	+ 1/8	+1.5
N	WALLACE BUS FORMS	18- 26	21	0	0.0
	COMPUTER SYSTEMS				
N	BURROUGHS CORP	105-138	131 1/8	-2 1/8	-1.5
N	COLLINS RADIO	14- 20	17	-1 5/8	-8.7
N	CONTROL DATA CORP	48- 83	68 1/4	- 1/2	-0.7
O	DATA GENERAL CORP	18- 45	44	+2 1/8	+5.0
N	DIGITAL EQUIPMENT	53- 83	79 3/4	-2 1/4	-2.7
N	ELECTRONIC ASSOC.	5- 9	8 1/8	- 7/8	-9.7
A	ELECTRONIC ENGINEER.	5- 9	7 3/4	- 3/4	-8.8
N	FOXBORO	25- 42	41 1/2	- 3/4	-1.7
O	GENERAL AUTOMATION	12- 28	18 3/4	- 1/2	-2.5
N	GENERAL ELECTRIC	94-124	121 5/8	- 1/8	-0.1
N	HEWLETT-PACKARD CO	30- 45	40 3/8	+2	+5.2
N	HONEYWELL INC	83-115	108 3/4	-2 1/4	-2.0
N	IBM	310-364	348	+7 3/4	+2.2
O	INTERDATA INC	6- 11	10 1/8	+ 1/4	+2.5
N	NCR	38- 47	45 1/8	+2 1/8	+4.9
N	RCA	26- 40	38 1/2	0	0.0
N	RAYTHEON CO	27- 46	41 7/8	- 7/8	-2.0
O	SCI. CONTROL CORP.	1- 2	1 1/8	0	0.0
N	SPERRY RAND	25- 38	35 3/4	- 3/4	-2.0
A	SYSTEMS ENG. LABS	12- 18	12	- 7/8	-6.7
N	VARIAN ASSOCIATES	13- 18	14 3/4	- 3/4	-4.8
N	VICTOR COMPTOMETER	17- 27	18 3/4	-1 1/2	-7.4
N	WANG LABS.	29- 50	46	-3 3/4	-7.5
N	XEROX CORP	85-119	106 5/8	-1 3/8	-1.2
	LEASING COMPANIES				
A	BOOTHE COMPUTER	13- 27	21 1/4	-1 5/4	-7.6
O	BRESNAHAN COMP.	2- 4	2 7/8	- 1/8	-4.1
O	COMPUTER EXCHANGE	4- 9	5	- 5/8	-11.1
A	COMPUTER INVSTRS GRP	8- 14	11 5/8	-1	-7.9
N	DATA PROC. F & G	11- 19	15 3/4	-1 1/4	-7.3
O	DATRONIC RENTAL	2- 4	2 7/8	0	0.0
A	DEARBORN-STORM	24- 44	38 1/8	-2	-4.9
A	DIEBOLD COMP. LEAS.	5- 13	11 5/8	+ 1/8	+1.0
A	DPA, INC.	4- 8	8 1/2	- 1/4	-3.7
A	GRANITE MGT	9- 13	10 1/2	+ 7/8	+9.0
A	GREYHOUND COMPUTER	7- 11	9 1/2	- 5/8	-8.1
N	LEASCO CORP	18- 23	21	- 3/4	-3.4
O	LECTRO MGT INC	2- 4	3 1/4	- 1/4	-7.1
A	LEVIN-TOWNSEND CMP	5- 9	8 7/8	- 3/8	-5.1
O	LMC DATA, INC.	1- 1	7/8	0	0.0
O	NCC INDUSTRIES	3- 8	7 1/4	+ 5/8	+9.4
O	SYSTEMS CAPITAL	3- 6	5 1/8	- 1/8	-2.3
N	U.S. LEASING	18- 28	24 1/2	- 1/2	-2.0

EXCH: N=NEW YORK EXCHANGE; A=AMERICAN EXCHANGE
L=NATIONAL EXCHANGE; O=OVER-THE-COUNTER
O-T-C PRICES ARE BID PRICES AS OF 3 P.M. OR LAST BID
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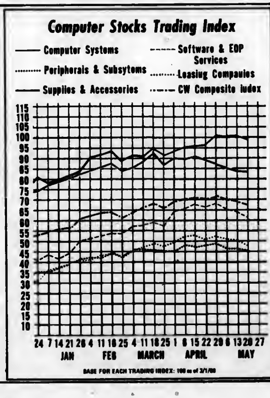

Earnings Reports

UNIVERSITY COMPUTING
Three Months Ended March 31

	1971	1970
aShr Ernd	$.21	b$.48
Revenue	34,084,000	29,211,000
Net Cont Op	1,540,000	c3,530,000
Loss Disc Op	.....	348,000
Spec Chg	.....	d4,119,000
Earnings (Loss)	1,540,000	(937,000)

a-Based on average common and common equivalent shares. b-Based on income before special charge. c-Equal to 53 cents a share. d-Cumulative effect on prior years of accounting change to expense software, installation and development costs as incurred.

BECKMAN INSTRUMENTS
Three Months Ended March 31

	1971	1970
Shr Ernd	$.27	$.37
Revenue	33,582,908	34,404,333
Earnings	938,062	1,303,103
9 Mo Shr	.79	.93
Revenue	96,540,795	99,341,898
Earnings	2,775,194	3,230,049

DATA-CONTROL SYSTEM
Six Months Ended April 2

	1971	1970
Revenue	a$1,926,000	$2,928,000
Loss Cont Op	192,000	663,000
Loss Disc Op	112,000	.....
bSpec Chg	86,000	279,000
Loss	390,000	942,000

a-From continuing operations. b-Write-off of new product startup expenses.

GRAPHIC SCIENCES INC.
Three Months Ended March 31

	a1971	1970
Shr Ernd	b$.01	.....
Revenue	2,187,447	$1,708,002
Tax Cred	14,500	
Earnings (Loss)	29,996	(779,972)
9 Mo Shr	b.02	.....
Revenue	6,530,544	4,745,228
Tax Cred	20,000	
Earnings (Loss)	54,843	(3,445,250)

a-Startup costs relating to new product were deferred during the quarter and nine months ended March 31, 1971 in the amounts of $309,278 and $477,977 respectively. b-Based on income before tax credit and on average outstanding shares, adjusted to reflect the 25% stock dividend payable about May 10, 1971.

SYSTEM DEVELOPMENT CORP.
Three Months Ended March 27

	1971	1970
Revenue	$11,285,000	$14,445,000
Earnings (Loss)	20,000	(171,000)
9 Mo Rev	34,135,000	42,657,000
Earnings (Loss)	657,000	(14,000)

METRIDATA
Three Months Ended March 31

	1971	1970
aShr Ernd (Loss)	$.11	$(.18)
Revenue	638,513	242,774
Spec Cred	12,648	.....
Earnings (Loss)	39,892	(61,508)

a-Based on income after special credit.

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WHY USE ROSCOE WHEN CRJE AND TSO ARE FREE? SIMPLE. TO SAVE MONEY.

CRJE

Over a period of three months, ADR conducted an objective and comprehensive comparison of ROSCOE (Remote OS Conversational Operating Environment) and IBM's CRJE (Conversational Remote Job Entry).

During this time both systems were operated for many hours and evaluated using criteria generally accepted by the industry as standard for measuring and judging the merits of software.

The basic purpose of the comparison was to examine the similarities and differences between the two systems, and to determine the advantages either might have for you, the user. Here are the results of this study.

Functions, Facilities, Ease of Use.

ROSCOE and CRJE have approximately 19 facilities common to each other. CRJE has 7 features for which ROSCOE has no counterpart, while ROSCOE has 20 features for which CRJE has no counterpart. CRJE's seven features represent, for the most part, conveniences to the programmer. Many of ROSCOE's 20 unique features are major capabilities (Dartmouth BASIC, COBOL syntax checker, post-processor) designed to increase programmer productivity, reduce overhead, and make the system more attractive to non-programmers.

Both systems have a diversified selection of terminal commands and options. CRJE's command format and syntax is similar to the Job Control Language (JCL). ROSCOE'S command repertoire is oriented toward the COBOL and FORTRAN applications programmer who may not be overly familiar with JCL.

From a user's point of view, a CRJE terminal is at any given time in one of several modes of operation, each of which accepts certain commands or subcommands. There are no modes of operation associated with a ROSCOE terminal and thus no distinction is made between commands and sub-commands. ROSCOE permits explicit, implicit, or editing commands to be entered at a terminal interchangeably.

Core Memory Requirements.

A ROSCOE System without syntax checkers supporting 5 terminals requires approximately 50,000 bytes. A comparable version of CRJE requires 80,000 bytes. A ten-terminal version of ROSCOE with syntax checkers averages 80,000 bytes. A comparable CRJE system requires approximately 130,000 bytes. Depending on configurations, ROSCOE generally requires 30% to 45% less core than CRJE.

Direct Access Storage Requirements.

ROSCOE's active files can reside on any direct access device—disk, drum, or data cell. CRJE's active file resides on 2311 or 2314 disk.

Disk space for ROSCOE's libraries are allocated using a factor of 4000 records per 2314 cylinder. CRJE's libraries are allocated using a value of 1400 records per cylinder.

A ROSCOE System with storage capacity for 400,000 source statements requires ½ of a 2314 disk pack. A comparable version of CRJE requires 1½ 2314 disk packs. On the average ROSCOE will use 60%-70% less disk space than CRJE.

Operating Speeds.

In general CRJE is faster for single line operations, while ROSCOE is faster for multiple-line or file-type operations. On a dedicated system, with one active terminal, changing a single line of data in CRJE takes one second, while changing a single line with ROSCOE takes 5 seconds. Changing multiple lines of a file with ROSCOE takes 20 seconds, while a similar operation with CRJE takes 80 seconds. With several terminals active simultaneously, changing a single line averaged 14 seconds for ROSCOE and 1 second for CRJE, while changing multiple lines averaged 53 seconds for ROSCOE and 420 seconds for CRJE.

The total elapsed time required to perform eleven fairly common data manipulation functions were—at the ROSCOE terminal, 112 seconds; at the CRJE terminal, 361 seconds. For all tests performed, total elapsed times for ROSCOE were superior by ratios ranging from 3:1 to almost 5:1.

Overhead, Reliability, Support.

ROSCOE degrades background batch processing by approximately 10%, while CRJE's degradation factor is 20%. ROSCOE, as a result of 2 years of production use, is 100% reliable. No reliability figures are as yet available for CRJE.

Both ROSCOE and CRJE are fully supported by their respective manufacturers. ROSCOE is periodically enhanced and redistributed to users.

Initial and Continuing Costs.

ROSCOE's initial cost is $12,000 while CRJE is an unpriced system control program. Using proportionate shares of the monthly rental for hardware dedicated to the two systems, dollar values for operating costs were calculated. ROSCOE's monthly operating cost at a typical installation is $3,300 per month; CRJE's operating cost is $6,500 per month for a comparable installation. The difference in total costs (both initial and continuing) associated with the two systems at a typical installation over a three-year period is shown in the table below:

	AFTER 12 MONTHS	AFTER 24 MONTHS	AFTER 36 MONTHS
CRJE	$78,888	$157,776	$236,664
ROSCOE	52,416	92,832	133,248
COST DIFFERENCE	**$26,472**	**$64,944**	**$103,416**

Although these dollar figures will vary significantly from one installation to another, the percentage of difference will tend to remain constant, and the total costs associated with ROSCOE will be consistently and substantially less than those for CRJE.

TSO...

TSO, which has functional similarities to ROSCOE, is due for release on June 30, three months behind schedule. According to IBM, additional field testing is required, while according to a TSO user the problem of "unspectacularly slow performance" necessitates coding changes. (*Datamation*, April 15). Although a thorough evaluation of TSO is not possible at this time, an examination of preliminary literature indicates that operating costs will be 5-10 times greater than for ROSCOE.

Call your nearest ADR office for a complete ROSCOE analysis. Which, incidentally, is really free.

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If you are planning to install a terminal system or are already operating one, ROSCOE may save you many thousands of dollars while at the same time providing unique and versatile capabilities for your terminal users.

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